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# Republic of the Marshall Islands *Changed Circumstances Petition* to Congress

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# Republic of the Marshall Islands *Changed Circumstances Petition* to Congress

## Summary

In September 2000, the Republic of the Marshall Islands (RMI) government submitted to the United States Congress a *Changed Circumstances Petition* related to U.S. nuclear testing on the Marshall Islands atolls of Bikini and Enewetak during the 1940s and 1950s. The Petition requests additional compensation for personal injuries and property damages and restoration costs, medical care programs, health services infrastructure and training, and radiological monitoring. According to various estimates, between 1954 and 2004, the United States spent over $500 million on nuclear test compensation and related assistance in the Marshall Islands.

The Petition bases its claims for compensation upon "changed circumstances" pursuant to Section 177 of the Compact of Free Association. The Compact of Free Association, enacted in 1986, governs the economic and strategic relationships between the United States and the RMI. The Section 177 Agreement granted $150 million as part of a "full and final settlement" of legal claims against the U.S. government, and provided for possible additional compensation, if loss or damages to persons or property arose or were discovered that could not reasonably have been identified as of the effective date of the agreement, and if such injuries rendered the provisions of the Compact "manifestly inadequate." The Petition argues that "new and additional" information since the enactment of the Compact — such as a wider extent of radioactive fallout than previously known or disclosed and more recent radiation protection standards — constitute "changed circumstances."

In November 2004, the U.S. Department of State released a report evaluating the legal and scientific basis of the Petition. The report concludes that "the Marshall Islands' request does not qualify as 'changed circumstances' within the meaning of Article IX of the nuclear claims settlement agreement enacted under Title II, Section 177 of the Compact of Free Association Act of 1986." Consequently, according to the Administration, there is no legal basis for considering additional payments. On May 25, 2005, the House Committee on Resources and the Subcommittee on Asia and the Pacific of the House Committee on International Relations held a joint hearing on the Petition. On July 19, 2005, the Senate Committee on Energy and Natural Resources held an oversight hearing on the effects of the U.S. nuclear testing program on the Marshall Islands.

This report summarizes U.S. nuclear testing on the Marshall Islands, U.S. compensation efforts to date, relevant provisions in the Compact of Free Association, and the *Changed Circumstances Petition*. It analyzes several issues related to the personal injury, health care, and property damages claims in the Petition. These issues include estimated occurrences of radiation-related illnesses in the Marshall Islands; the methodology for determining the value of "lost use" of damaged properties; the appropriate standard of risk (annual dose limit) for determining cleanup levels; and the extent of radioactive fallout. This report also discusses possible legal options for the RMI in pursuing nuclear test damages claims and identifies policy options for the 109th Congress.

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# Republic of the Marshall Islands *Changed Circumstances Petition* to Congress

## Introduction

### Background

The 109th Congress is considering the *Changed Circumstances Petition*, submitted to the United States Congress by the Republic of the Marshall Islands (RMI), for further compensation for damages resulting from U.S. nuclear testing on Marshall Islands atolls during the 1940s and 1950s. Key oversight committees are the Senate Energy and Natural Resources Committee, the House Resources Committee, and the House International Relations Committee. On May 25, 2005, the House Committee on Resources and the Subcommittee on Asia and the Pacific of the House Committee on International Relations held a joint hearing on the *Changed Circumstances Petition*. On July 19, 2005, the Senate Committee on Energy and Natural Resources held an oversight hearing on the effects of the U.S. nuclear testing program on the Marshall Islands.

According to U.S. government estimates, the United States has spent between $520 million and $550 million in the Marshall Islands on nuclear test-related compensation and assistance, including health care, medical surveillance and environmental monitoring, cleanup of contaminated sites, and resettlement efforts. About one-half of this assistance was provided through congressional ex gratia payments.[1] The Compact of Free Association, which established the Marshall Islands as a "freely associated state,"[2] extended $150 million for nuclear test-related compensation as part of a "full and final settlement"[3] of claims. Under Section 177 (Article IX) of the Compact, additional compensation may be requested by the RMI, if loss or damages to persons or property arose or were discovered that could not reasonably have been identified as of the effective date of the agreement and if such injuries rendered the provisions of the Compact "manifestly inadequate." In September 2000, the Marshall Islands government submitted to the United States Congress a *Changed Circumstances Petition* requesting additional compensation

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[1] "ex gratia" — not compelled by legal right or formal agreement.

[2] The Compact was negotiated and agreed to by the governments of the United States and the Marshall Islands and approved by plebiscite in the Marshall Islands and by the U.S. Congress in 1985. The Marshall Islands people thus chose the status of a freely associated state — a sovereign nation with economic and security ties to the United States.

[3] The Agreement for the Implementation of Section 177 of the Compact of Free Association states that the fund of $150 million was created "to provide, in perpetuity, a means to address past, present and future consequences of the Nuclear Testing Program."

pursuant to the Compact. The Petition requests compensation for personal injury awards, property damages (loss of use, restoration costs, and hardships suffered), health services infrastructure, a health care program, radiation exposure monitoring, and other programs.

The Petition justifies its claims of "changed circumstances" largely upon "new and additional" information since the Compact's enactment — declassified Department of Energy records in the early 1990s that indicated a wider extent of radioactive fallout than previously known or disclosed and scientific findings that reduced the levels at which exposure to radiation was deemed safe. As a result of, and in addition to, the above findings, the Petition and accompanying materials argue that higher than expected health consequences and costs of health care and environmental cleanup, as well as lower than expected investment returns from the Nuclear Claims Fund, constitute changed circumstances. Furthermore, according to the Petition's supporting arguments, the Nuclear Claims Fund constituted a provisional, "political settlement" rather than a final determination based upon a conclusive scientific assessment of costs. The Petition contends that the U.S. Congress agreed to retain its authority, through legislation to approve the Compact (P.L. 99-239), to appropriate additional compensation should the need arise.[4] Furthermore, legal counsel for the four nuclear-affected atolls maintain that U.S. courts left open the possibility that RMI plaintiffs could also return to the courts if they did not receive adequate compensation from Compact provisions.

The Petition's monetary requests include unpaid Nuclear Claims Tribunal (NCT) personal injury awards of $15.7 million; unpaid NCT property damages awards to Enewetak Atoll and Bikini Atoll totaling $949 million; $50 million for medical services infrastructure; and $45 million annually for 50 years for a health care program for those exposed to radiation.

In November 2004, the U.S. Department of State released a report compiled by an interagency group (Departments of State, Energy, and Defense) evaluating the legal and scientific bases of the Petition.[5] The report concludes that "the Marshall Islands' request does not qualify as 'changed circumstances' within the meaning of Article IX of the nuclear claims settlement agreement enacted under Title II, Section 177 of the Compact of Free Association Act of 1985." The report also disputes some key scientific claims of the Petition regarding the geographical extent of radioactive fallout, radiation dose estimates, and the applicability of U.S. standards to conditions in the RMI. Consequently, according to the Bush Administration, there is no legal basis for considering additional payments.

The Administration report further suggests that the radiological health care needs of the RMI, as requested in the Petition, are addressed in part through health

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[4] Howard L. Hills, Attorney at Law, "Historical Information Regarding the Marshall Islands Nuclear Claims Settlement," Testimony before the House Committee on Resources, May 11, 1999.

[5] U.S. Department of State, *Report Evaluating the Request of the Government of the Republic of the Marshall Islands Presented to the Congress of the United States of America*, November 2004.

sector grants of approximately $16 million per year as provided by the amendments to the Compact of Free Association.[6] RMI officials point out, however, that the Petition's requests were not a part of the bilateral negotiations to amend the Compact, and that the Compact, as amended, was not intended to take account of nuclear test compensation claims.[7] They add that a large proportion of the expenditures noted in the Administration report supported U.S. government research into the effects of radiation upon human beings and the environment and benefitted U.S. interests, but did not directly benefit communities affected by the nuclear testing.

This report analyzes and discusses several issues related to key personal injury, health care, and property damages claims in the Petition. These include expected radiation-related illnesses in the Marshall Islands; the methodology for determining the value of "lost use" of damaged properties; the appropriate standard of risk (annual dose limit) for determining cleanup levels; and the extent of radioactive fallout. Finally, this report discusses possible legal options for the RMI in pursuing nuclear damages claims.

## Congressional Policy Options

Congress has several policy options regarding the Marshall Islands' request for additional compensation for nuclear damages. These include:

- Grant or reject the Changed Circumstances Petition's requests, in whole or in part, on the basis of the changed circumstances rationale.
- Continue congressional ad hoc, ex gratia payments through Department of the Interior appropriations measures.
- Enact legislation that would provide for a "full and final settlement" of claims.
- Allow the federal courts, through an amendment to the Compact of Free Association, to review the judgments of the Nuclear Claims Tribunal and potentially to order the United States to pay these awards, in whole or in part.[8]

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[6] Compact of Free Association Amendments Act of 2003 (P.L. 108-188).

[7] "Joint Statement: Third Session of Bilateral Negotiations on the Compact of Free Association," December 12, 2001; Albert Short, Compact Negotiator, United States Department of State, letter to Gerald Zackios, Minister of Foreign Affairs and Trade, Republic of the Marshall Islands, March 24, 2002.

[8] This proposal has been suggested by leaders of the RMI and its four affected atolls. See Statement of the Peoples of Bikini, Enewetak, Rongelap and Utirik before the Senate Energy and Natural Resources Committee, July 15, 2003.

## Summary of Analysis

The following sections summarize selected key issues related to the *Changed Circumstances Petition*. These issues are analyzed in depth in subsequent sections of the report. The Petition's personal injury claims and health care requests are modeled after U.S. programs for compensating radiation-exposed individuals, and based upon scientific studies establishing the areas of the Marshall Islands in which residents likely have been exposed to dangerous levels of radioactive contamination. A National Cancer Institute (NCI) study, discussed below, provides support for the need for compensation. However, as noted below, there is some dispute regarding the portion of the RMI population that has been exposed to radiation from the nuclear weapons tests.

The Petition's request for compensation to conduct further environmental restoration is based on a U.S. Environmental Protection Agency (EPA) cleanup standard, and the RMI assertion that the contamination is more widespread than previous surveys had found. The issue of whether the EPA's standard should apply to the cleanup of the Marshall Islands, as well as disagreement over the extent of contamination, are summarized here and examined later in the report. A significant amount of the property claim in the Petition is based on the claimants' "loss of use" calculations. This report provides an assessment of the methodology employed by the claimants in calculating "loss of use."

**Test-Related Cancer Estimates.** The NCI in September 2004 estimated that nuclear testing would result in about 530 additional lifetime cancers among the 14,000 Marshall Islands residents exposed to the testing. NCI also estimated that about 5,600 cancers would have occurred in that population without the fallout exposure. Because the cancers caused by testing cannot be distinguished from cancers that would have occurred anyway, all victims of certain types of cancers are being compensated. NCI estimates that about half the cancers expected in the exposed population have yet to be diagnosed, so additional compensation claims are likely.

**"Loss of Use" Methodology.** In general, the methodology used by the NCT to estimate the value of the lost use of the claimants' property is considered to be reasonable and appropriate. For several reasons, however, the specific application of the methodology — much of the critical data used, many of the assumptions, and certain statistical procedures applied (i.e., the sampling technique and the regression model) — result in past and future loss-of-use estimates that appear to be overstated, which leads to possibly excessive total damages claimed and awarded by the NCT. The main problem is with the use of inflated average rents per acre, which are estimated by applying an exponential regression model to unrepresentative sample data that reflect RMI government-influenced rents, rather than competitive, free-market rents. This can lead to an overestimate of not only past loss-of-use, but because estimated rents is a critical variable used as an input into future-loss-of-use calculations, a possible overestimate of future loss-of-use as well.

The methodology also 1) assumes that more land is lost to use, and for longer periods than is actually the case, 2) undervalues the rentals on alternative atoll habitation, and 3) assumes that recipients of rental proceeds, as consumers and

savers, would have saved 100% of the rental proceeds. Each of these assumptions can lead to an overestimate of past loss of use.

**Cleanup Standards.** The RMI argues that a more recent U.S. radiation protection standard warrants further cleanup in the Marshall Islands. However, the Bush Administration contends that the standard applied to past cleanup efforts there remains unchanged and that levels of contamination remain safe according to this standard. For cleanup purposes, the RMI has adopted the standard established by the EPA for the cleanup of radioactive contamination at Superfund sites in the United States. This standard limits annual exposure to 15 millirems of radiation above natural background levels from all sources. The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, P.L. 96-510, reauthorized by P.L. 99-499) established the Superfund program to clean up hazardous waste sites in the United States to a degree that would be safe for the intended land use of the site. EPA issued its 15 millirem standard in 1997 as a non-binding guideline for the cleanup of Superfund sites, 11 years after the 1986 Compact with the Marshall Islands. This 15 millirem standard is more stringent and more recent than the 100 millirem standard established by the U.S. Department of Energy (DOE) that was used to determine the degree of cleanup in past efforts in the Marshall Islands.

The RMI argues that the 15 millirem standard is the same level of public protection that is provided in the United States and that it therefore should be applied to the cleanup of the Marshall Islands. However, the 15 millirem standard is not an enforceable federal regulation. As noted above, it is an EPA recommended guideline that is applied on a case-by-case basis, depending on the feasibility of attaining it at a particular site. Although there is some precedent for applying the 15 millirem standard to certain nuclear weapons sites in the United States, such sites generally are cleaned up to DOE's less stringent standard of 100 millirems, which has been used in the Marshall Islands for past cleanup, as noted above. Consequently, the RMI's claim that the 15 millirem standard would apply to the cleanup of the Marshall Islands if it were done in the United States today is not necessarily the case. The Bush Administration advocates the continued use of DOE's 100 millirem standard and argues that further cleanup is not necessary, citing medical tests indicating that doses of radiation among the population are already below this amount.

**Contaminated Areas.** In addition to the issue of whether a more recent radiation protection standard warrants further cleanup, there is disagreement regarding the extent of contamination. There have been numerous surveys of radioactive contamination in the Marshall Islands since nuclear weapons tests ceased. Residents of the islands have expressed longstanding concern as to whether these surveys have identified all contaminated areas. The most exhaustive survey of contamination was performed in 1994. The survey found that the greatest contamination was in the northernmost islands not inhabited at that time, and that the level of radioactivity in occupied areas was safe. The RMI has disagreed with these findings and claims that the extent of contamination and health risks were understated. The Bush Administration supports the findings of the 1994 survey and argues that further cleanup is not warranted to protect the residential population. However, if some of the more contaminated northern islands are to be resettled or used for agricultural purposes, further cleanup could be necessary to prevent the risk of exposure, depending on the concentration of radioactivity deemed safe.

**Litigation Involving Inhabitants of the RMI.** In the early 1980s, fourteen different groups of litigants representing approximately 5,000 inhabitants of the Marshall Islands brought cases in the United States Court of Claims against the United States to recover damages said to result from nuclear weapons testing. The litigants were from three different groups: inhabitants of the Bikini Atoll, inhabitants of the Enewetak Atoll, and inhabitants of atolls and islands that were not used as atomic test sites. The court made separate preliminary findings regarding each of these. In the case involving Bikini Atoll inhabitants, the court found that a claim of a takings in violation of the Fifth Amendment and of breach of an implied-in-fact contract survived a motion to dismiss based, among other things, on a statute of limitations bar. In the case involving the inhabitants of the Enewetak Atoll, it was held that a breach of contract claim survived a motion to dismiss, as did a takings claim by the plaintiffs who were not on the Bikini or Enewetak islands. Subsequently, the Compact of Free Association was implemented between the United States and RMI, and the Nuclear Claims Tribunal was established under Section 177 of that agreement. The Court of Claims then concluded that it was premature to address the question of whether this alternative procedure was adequate to provide compensation for the litigants, and so it dismissed the cases. The RMI argues that the court decision left open the possibility of further compensation — beyond that provided by the Compact.

## History of U.S. Nuclear Testing in the Marshall Islands[9]

From 1946 to 1958, the United States conducted 67 atmospheric atomic and thermonuclear weapons tests on the Marshall Islands atolls of Bikini and Enewetak.[10] During that time, the Marshall Islands was a district of the United Nations Trust Territory of the Pacific Islands administered by the United States. In 1954, "Castle Bravo," the second test of a hydrogen bomb, was detonated over Bikini atoll, resulting in dangerous levels of radioactive fallout upon the populated atolls of Rongelap and Utrik. See **Appendix D**.

Some experts argue that the nuclear tests, in addition to rendering the four atolls of Bikini, Enewetak, Rongelap, and Utrik uninhabitable or dangerously irradiated, caused high incidences of birth defects, miscarriage, and weakened immune systems as well as high rates of thyroid, cervical, and breast cancer. In addition, they contend that more than a dozen Marshall Islands atolls, rather than only four, were seriously affected.[11] Other analysts counter that the extent of radioactive fallout was limited to the four northern atolls, and that RMI experts overestimate the link between radiogenic illnesses in the Marshall Islands and the nuclear tests.

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[9] Prepared by (name redacted), Specialist in Asian Affairs.

[10] Including one detonation 100 kilometers west of Bikini.

[11] Gary Lee, "Postwar Pacific Fallout Wider than Thought," *Washington Post*, February 24, 1994.

In September 2000, the Marshall Islands government submitted to the United States Congress a nuclear claims petition (*Changed Circumstances Petition)* requesting, over a 50-year period, approximately $3.3 billion for personal injuries, property damages, medical care and training, and radiological monitoring pursuant to the Compact of Free Association. The Compact, promulgated in 1986 (P.L. 99-239), terminated the United Nations Trust Territory status of the Marshall Islands and Micronesia and provided a "full measure of self-government" for the peoples of the two island states.[12] In March 2002, the Senate Energy and Natural Resources Committee and House Resources Committee requested that an interagency group (U.S. Departments of State, Energy, and Defense) evaluate the petition and provide Congress with an assessment of its merits following the enactment of the Compact of Free Association Amendments Act (P.L. 108-188). In November 2004, the Administration released its report evaluating the Petition.

## U.S. Compensation and Assistance[13]

According to one estimate, since 1954, the United States has provided $531 million to the Marshall Islands for nuclear test damages, including compensation payments, environmental cleanup and restoration, and resettlement programs. This total also includes an estimated $138 million in Department of Energy (DOE) radiological and health monitoring in the four affected atolls and medical programs for the residents of Rongelap and Utrik through 2002.[14] The Compact of Free Association established a Nuclear Claims Fund of $150 million for personal injury and property damages claims, health care, medical surveillance and radiological monitoring, trust funds for the four atolls, and quarterly distributions to the peoples of the four atolls for hardships suffered. By one estimate, since 1964, when major U.S. compensation programs began, Congressional authorizations for nuclear test damages total roughly $398 million in payments, not including funding for DOE radiological and health programs. See **Appendix A**.

The investment returns on the Fund were expected to generate $270 million over the 15 years of the first Compact term while the original $150 million would remain as principal. Section 177 provided that the $270 million would be distributed as

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[12] The Compact of Free Association, which governs the economic, military, and strategic relationships between the United States and the Freely Associated States (The Marshall Islands, Micronesia, and Palau), provided economic assistance to the Marshall Islands totaling $945 million between 1987 and 2001. See CRS Report RL31737, *The Marshall Islands and Micronesia: Amendments to the Compact of Free Association with the United States,* by (name redacted).

[13] Prepared by (name redacted), Specialist in Asian Affairs.

[14] A detailed accounting can be found in: U.S. Department of State, *Report Evaluating the Request of the Government of the Republic of the Marshall Islands Presented to the Congress of the United States of America*, "Appendix B: Estimates of U.S. Nuclear Testing-Related Assistance and Compensation." See also Ralph Boyce, Deputy Assistant Secretary of State, East Asia and Pacific Affairs, Testimony before the House Committee on Resources, "The Status of Nuclear Claims, Relocation and Resettlement Efforts in the Marshall Islands," May 11, 1999.

follows: $45.75 million to the Nuclear Claims Tribunal (NCT) for monetary awards; $75 million to Bikini Atoll; $48.75 to Enewetak Atoll; $37.5 million to Rongelap Atoll; $22.5 million to Utrik Atoll; $30 million for a health care program for the four affected atolls; $3 million for medical surveillance and radiological monitoring; and $7.5 million for NCT operating costs.

## U.S. Health and Environmental Programs in the RMI

Since the time of the nuclear testing, the United States government has operated nuclear test-related health and environmental programs in the Marshall Islands. Legislation authorizing such programs includes P.L. 95-134, P.L. 96-205, P.L. 99-239 (the Compact of Free Association Act), and 108-188 (The Compact of Free Association Amendments Act). In addition, the RMI health system is largely supported by U.S. government grants as mandated by the Compact and amended Compact (Compact II).[15] Beginning in 1954, the Department of Energy's Brookhaven National Laboratory sent medical teams twice a year to monitor and treat patients of Rongelap and Utrik atolls, who had received acute radiation exposure from the Bravo test. Since 1998, the Pacific Health Research Institute (Honolulu) has administered the Radiological Health Care Program year-round. The program has two clinics and currently provides medical care to 119 enrolled persons from Rongelap and Utrik. Those patients who cannot be adequately treated in the RMI are referred to the Straub Clinic in Honolulu, Hawaii.[16] In addition, since 1972, the Lawrence Livermore National Laboratory has conducted environmental and agricultural studies in order to assess radiological conditions at Bikini, Enewetak, Rongelap, and Utrik.[17] Since 1986, DOE has budgeted approximately $6.3 million per year for the above health and environmental programs, with about $1.1 million going to medical services.

The Four Atoll Health Care Program (the "177 Health Program"), as authorized by P.L. 96-205, P.L. 99-239, and P.L. 108-188, has provided routine (non-radiogenic) medical services for residents of the four nuclear-affected atolls and elsewhere who may have been exposed to harmful, chronic levels of radiation (including those not yet born at the time of the testing).[18] According to the November 2004

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[15] Under Compact II, the United States spends over $7 million per year directly on health care in the Marshall Islands, plus infrastructure grants that in part support medical services. *Fact Sheet*, Bureau of East Asian and Pacific Affairs, U.S. Department of State, January 4, 2005.

[16] Statement of Dr. Paul J. Seligman, Deputy Assistant Secretary for Health Studies, U.S. Department of Energy, before the House Committee on Resources, "The Status of Nuclear Claims, Relocation and Resettlement Efforts in the Marshall Islands," May 11, 1999.

[17] "U.S. Cuts Funds for Marshalls Environmental Monitoring," *BBC Monitoring Asia Pacific*, March 4, 2004.

[18] The Four Atoll Health Program provides services to residents of the four atolls at the time of the nuclear tests, and to recipients of NCT personal injury awards, who need only (continued...)

Administration report, the 177 Health Program, managed since 1987 by Trinity Health International, a Michigan-based nonprofit health care organization, employs 15 staff and serves nearly 13,500 enrollees. The Compact mandated $2 million per year (1986-2003) for the health services. The funding proved to be inadequate, however. Reasons cited include the unexpectedly large enrollment of individuals in the program and the lack of an inflation adjustment in the funding. The services received no appropriations for FY2004. The Consolidated Appropriations Act for FY2005 (P.L. 108-447) provided $1 million for the program.[19] The RMI government has urged the U.S. government to continue both the DOE and 177 health programs.

**Additional Programs for the Nuclear Affected Atolls.** Section 103 of the Compact Act (P.L. 99-239) authorized several resettlement, agricultural, and food programs. Since 1979, the Department of the Interior has provided for the re-vegetation of portions of Enewetak atoll with crops such as coconut, pandanus, breadfruit, taro, lime, and bananas. P.L. 99-239 authorized the continuation of the Enewetak Food and Agriculture Program, which was funded at an average annual amount of approximately $1.2 million between 1986 and 2003. The Compact of Free Association Amendments Act of 2003 (P.L. 108-188) authorized $1.3 million per year for the program through 2023. P.L. 99-239 and amending legislation authorized the shipment of U.S. Department of Agriculture (USDA) supplemental food commodities to the four affected atolls. The Special Assistance Food Program, re-authorized by P.L. 108-188 and costing about $600,000 annually, continues on a discretionary basis under USDA appropriations measures, most recently the Consolidated Appropriations Act for FY2005 (P.L. 108-447).

## Radiation Injury Compensation Programs — RECA and the Nuclear Claims Tribunal

The Compact of Free Association, Section 177, established a Nuclear Claims Tribunal to adjudicate claims related to the nuclear testing program and provided $45.75 million for payment of awards over a period of 15 years. The Tribunal's system of *personal injury* compensation, implemented in 1991, is based upon two U.S. statutes, the Radiation-Exposed Veterans Compensation Act of 1988 (P.L. 100-321) and the Radiation Exposure Compensation Act (P.L. 101-426), which provides for not only victims who were present at the test but also those who were presumably "downwind" from the detonation. Marshall Islands citizens from all atolls and islands were considered because of the possibility of fallout, low but long-term exposure, and consumption of produce from nuclear-affected areas. The NCT provides biological children of a mother who was physically present at the time of the testing 50% of amounts offered first generation claimants. As of December 2004, the NCT had paid $71.7 million on personal injury awards totaling over $87 million

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[18] (...continued)
establish a presumed radiological illness, regardless of where they were located at the time of the tests.

[19] See Conference Report on H.R. 4818, Consolidated Appropriations Act, 2005 (H.Rept. 108-792).

to 1,917 individuals. Over 40% of awardees died before receiving full compensation due to lack of funds and the pro-rated basis of making payments.[20]

In response to U.S. government concerns that the Nuclear Claims Tribunal may have been unduly influenced by political pressures or had operated without adequate transparency, in 2002, the Marshall Islands government commissioned former United States Attorney General Richard Thornburgh to undertake an independent examination and assessment of the judicial processes used by the Nuclear Claims Tribunal. The Thornburgh report concluded that the Tribunal: fulfilled the basic functions contemplated by the U.S. Congress and the Marshall Islands legislature, the Nitijela; followed procedures that closely resemble those used by legal systems in the United States; and operated with a reasonable degree of independence from the Nitijela.[21]

## The U.S. RECA Program[22]

The 1990 Radiation Exposure Compensation Act (RECA) provides "compassionate" lump-sum payments to individuals who have contracted certain cancers and other serious diseases that are presumed to be the result of their exposure to ionizing radiation from above-ground nuclear weapons testing or from various activities in connection with uranium mining.[23] RECA is administered by the Department of Justice's Civil Division.[24]

As originally enacted in 1990, RECA established two categories of claimants: (i) downwinders (i.e., civilians who lived in specified counties downwind from the Nevada Test Site in the 1950s and early 1960s) who developed one of 13 types of cancer; and (ii) uranium miners in certain states who worked in underground mines between 1947 and 1971 and who developed lung cancer or certain nonmalignant respiratory diseases. Immediately after its enactment, RECA was amended to include a third category of claimant: government employees and others who participated on-site in an above-ground test, and who developed one of the same 13 cancers for which downwinders may be compensated.[25] RECA was more substantially modified

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[20] [http://www.nuclearclaimstribunal.com/piawards.htm]

[21] Dick Thornburgh, Glenn Reichardt, and Jon Stanley, *The Nuclear Claims Tribunal of the Republic of the Marshall Islands: An Independent Examination and Assessment of its Decision-Making Processes*, Kirkpatrick & Lockhart LLP, Washington, DC, January 2003.

[22] Prepared by C. (name redacte d), Specialist in Life Sciences.

[23] P.L. 101-426, 104 Stat. 920 (Oct. 15, 1990).

[24] Information about RECA is online at [http://www.usdoj.gov/civil/torts/const/reca].

[25] P.L. 101-510, 104 Stat. 1835 (Nov. 5, 1990). On-site participants are individuals who were present above or within the official boundaries of the Nevada, Pacific, Trinity, or South Atlantic Test Sites during a period of testing and who participated in the test. Note that citizens of the Marshall Islands are specifically excluded from eligibility for compensation under RECA.

and expanded in 2000.[26] The changes included creating two new claimant populations (i.e., uranium millers and uranium ore transporters) and adding six types of cancer to the list of 13 cancers for which downwinders and on-site participants may be compensated.

**Compensation of Downwinders and On-Site Participants.** RECA specifies a payment of $50,000 to an individual who was physically present in one of the affected areas downwind of the Nevada Test Site during the period of above-ground testing,[27] and who subsequently contracted one of the following specified diseases: leukemia (other than chronic lymphocytic leukemia); lung cancer; multiple myeloma; lymphoma (other than Hodgkin's disease); and primary cancer of the thyroid, breast, esophagus, stomach, pharynx, small intestine, pancreas, bile ducts, gall bladder, salivary gland, urinary bladder, brain, colon, ovary, or liver (except if cirrhosis or hepatitis B is indicated). Individuals who participated in an above-ground test, and who subsequently developed one of the same cancers, are eligible for a payment of $75,000.

**Program Administration.** Through FY2002, the Radiation Exposure Compensation Program (RECP) received 14,987 claims: 7,915 (52.8%) claims were approved and paid a total of $530.5 million; 4,418 (29.5%) claims were denied; and the remaining 2,654 (17.7%) claims were pending. A majority of the claims were submitted by downwinders. Downwinders filed 8,310 claims through FY2002, of which 4,945 (59.5%) were approved and each paid $50,000 (for a total of $247.2 million), 1,688 (20.3%) were denied, and the remaining 1,677 (20.2) were pending. Downwinder claims were denied primarily because the claimant did not have an eligible disease or was not physically present in the affected area during the required time period.[28]

Congress makes annual appropriations to the RECA Trust Fund, from which compensation is paid to eligible claimants. Any money remaining in the Trust Fund at the end of the fiscal year is carried forward to the next fiscal year. Passage of the RECA Amendments of 2000 led to a dramatic increase in the number of claims filed and processed. Congress initially appropriated $11 million to the Trust Fund for FY2001, but followed that up with a supplemental appropriation for "such sums as may be necessary" to pay claims through the end of that fiscal year. The Trust Fund paid out a total of $108 million in approved claims in FY2001. The National Defense Authorization Act for FY2002 mandated appropriations for the RECA Trust Fund for a 10-year period — FY2002 through FY2011 — up to a specified maximum amount each fiscal year.[29] That eliminated the need for new congressional action in

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[26] P.L. 106-245, 114 Stat. 501 (Jul. 10, 2000).

[27] The affected area includes certain counties in Utah, Nevada, and Arizona. Claimants had to be present in the affected area for at least two years between Jan. 21, 1951, and Oct. 31, 1958, or for the period beginning on Jun. 30, 1962 and ending on Jul. 31, 1962.

[28] U.S. General Accounting Office, *Radiation Exposure Compensation: Analysis of Justice's Program Administration*, GAO-01-1043 (Washington, DC: Sept. 17, 2001).

[29] P.L. 107-107, 115 Stat. 1012 (Dec. 28, 2001). The act appropriated the following amounts (continued...)

each of those fiscal years unless Congress determined that additional funding was necessary.[30]

## The Nuclear Claims Tribunal

The Nuclear Claims Tribunal adjudicates claims filed by RMI citizens seeking compensation for personal injuries and property damage suffered as a result of the U.S. nuclear tests. The Tribunal used RECA as a model in developing its own personal injury compensation program, which began in August 1991. As with RECA, the Tribunal does not require the claimant to prove a specific causal link between his or her exposure to radiation and the claimant's injury. The claimant must simply provide proof of residency in the Marshall Islands during the years of nuclear testing (i.e., between July 1, 1946, and August 19, 1958) and have one of the listed compensable diseases, which the Tribunal presumes to be caused by radiation exposure.

Initially, the Tribunal adopted a list of 25 compensable diseases, including the cancers listed under RECA, and other conditions for which there was credible evidence showing a significant statistical relationship between exposure to ionizing radiation and the subsequent development of the disease. In determining which diseases to included on the list, the Tribunal reviewed the findings of the Radiation Effects Research Foundation in Japan and the U.S. National Academy of Sciences, and sought recommendations from Dr. Robert Miller, an expert in the field of radiation health effects.

The Tribunal reviews the list of compensable diseases each year and considers any new scientific evidence on diseases linked to exposure to ionizing radiation. As a result of that review process, the list has been amended on several occasions since 1991 and now includes a total of 35 medical conditions. **Appendix B** compares the dollar amounts awarded for the various compensable diseases covered under RECA and the Tribunal's program. Unlike RECA, which pays the same amount for all downwinder claims (i.e., $50,000), the Tribunal awards differing amounts for the various diseases on its list.[31]

## National Research Council Report on RECA

On April 28, 2005, the National Research Council (NRC) released a report on the Radiation Exposure Compensation Program, in which it recommended against adding any additional diseases to the list of cancers for which downwinders and on-

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[29] (...continued)
to the RECA Trust Fund: FY2002, $172 million; FY2003, $143 million; FY2004, $107 million; FY2005, $65 million; FY2006, $47 million; FY2007, $29 million; FY2008, $29 million; FY2009, $23 million; FY2010, $23 million; FY2011, $17 million.

[30] U.S. General Accounting Office, *Radiation Exposure Compensation: Funding to Pay Claims May Be Inadequate to Meet Projected Needs*, GAO-03-481 (Washington, DC: April 14, 2003).

[31] For more information, see Thornburgh, et al., op. cit.

site participants may be compensated.[32] Instead, the NRC recommended that Congress establish new scientific criteria for decisions about awarding federal compensation to people with specific diseases who were exposed to radioactive fallout from U.S. nuclear weapons tests. The report noted that fallout from the tests covered a wide geographic area and that people living far beyond the counties currently designated under RECA may have been exposed to higher amounts of radiation. To be equitable, the NRC recommended that individual claims be based on probability of causation (PC). This method employs a formula to determine whether an individual's estimated radiation exposure is likely the cause of his or her specific cancer. If the estimated PC for that individual meets or exceeds the criteria established by Congress, then compensation is awarded. The NRC also recommended that the costs of screening, diagnosis, and treatment of compensable diseases be covered for awardees. Noting the generally low levels of exposure from fallout and the fact that ionizing radiation is not a potent cancer-causing agent, the report concluded that any changes in the eligibility criteria for compensation probably would result in few additional successful claims.

## The Changed Circumstances Petition[33]

The Compact of Free Association between the United States and the Republic of the Marshall Islands (RMI), Section 177, and the Agreement for the Implementation of Section 177 created a $150 million Nuclear Claims Fund for four "most affected" Marshall Islands atolls and their peoples.[34] The Compact, which went into effect in 1986, settled and terminated nuclear compensation lawsuits by Marshall Islanders against the United States government that were pending in U.S. courts, and established the NCT to adjudicate claims and grant awards from the Nuclear Claims Fund. However, Article IX of the 177 Agreement (the *Changed Circumstances Clause*) provided for possible additional compensation, if loss or damages to persons or property arose or were discovered that could not reasonably have been identified as of the effective date of the agreement (1986) and if such injuries rendered the provisions of the Compact "manifestly inadequate."

Furthermore, according to the Petition's supporting arguments, the Fund constituted a "political settlement" rather than a determination based upon a scientific assessment of costs. At the time of the Compact negotiations, RMI officials and other experts reportedly argued that the full extent of personal injury and private property damages was not known. Congress hence agreed to retain its authority, through legislation to approve the Compact (P.L. 99-239), to appropriate additional compensation should the need arise.[35] In addition, legal counsel for the four atolls

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[32] National Research Council, *Assessment of the Scientific Information for the Radiation Screening and Education Program* (Washington, DC: National Academy Press, 2005).

[33] Prepared by (name redacted), Specialist in Asian Affairs.

[34] The U.S. nuclear weapons tests were conducted on Bikini and Enewetak atolls while Rongelap and Utrik atolls suffered radioactive fallout.

[35] Howard L. Hills, "Historical Information Regarding the Marshall Islands Nuclear Claims (continued...)

maintain that U.S. courts left open the possibility that RMI plaintiffs could also return to the courts if they did not receive adequate compensation from the NCT and the Nuclear Claims Fund.[36]

Finally, the RMI government seeks remedies on the basis of "equity" or compatibility with the U.S. government's compensation program for radiation-exposed civilians and with its standards for cleaning up radiation-contaminated facilities. Government officials claim that the RMI has received only a fraction of the amount of money the U.S. government has spent on areas in the United States exposed to radiation during the Cold War.

## Petition Requests

- Unpaid NCT personal injury awards of $15.7 million (due to lack of funds).
- Unpaid NCT property damages awards (due to lack of funds) to Enewetak Atoll ($386 million) and Bikini Atoll ($563 million) for loss of use of their lands (past and future), restoration costs, and hardships suffered.[37]
- $50 million for medical infrastructure.
- $45 million annually (50 years) for a "Section 177" health care program for those exposed to radiation during and after the tests and for NCT personal injury claimants.[38]
- An extension of DOE medical surveillance and environmental monitoring program for exposed groups and areas for 50 years.

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[35] (...continued)
Settlement," op. cit.

[36] *People of Enewetak v. United States*, 864 F. 2d 134, 136 (Fed. Cir. 1988); Thornburgh, et al., op. cit.

[37] The NCT granted awards to the people of Enewetak on April 13, 2000 and to the people of Bikini on March 5, 2001. These awards were adjusted to reflect amounts already received through other measures. The Enewetak award includes $244 million for loss of use, $107 million for restoration, and $34 million for hardships suffered. The Bikini award includes $278 million for loss of use, $251 million for restoration, and $34 million for hardships suffered. Pending claims before the NCT include class action lawsuits for the peoples of four other nuclear-affected atolls — Rongelap, Utrik, Ailuk, and Likiep. Nuclear Claims Tribunal awards for these atolls would be added to the monetary claims of the Changed Circumstances Petition.

[38] This assistance presumably would supplant NCT awards as the NCT ceases operation. Such a program would include coverage for those RMI workers involved in cleanup operations on contaminated sites but who are currently ineligible for 177 Health Program services because they were not residents of one of the four nuclear-affected atolls during the time of testing (or descendants of such residents) or not yet born at the time of testing.

- Capacity-building, occupational safety, and "nuclear stewardship:" programs to enable the RMI to conduct its own research in radiation-related fields, promote the safety of Marshallese workers involved in environmental remediation and cleanup activities, and teach affected communities about how to safely contain radiation.[39]

## "Changed Circumstances" Basis of Petition and Supporting Arguments

The Petition justifies its claims of "changed circumstances" largely upon "new and additional" information since the Compact's enactment — Department of Energy records (declassified in the early 1990s) that indicated a wider extent of radioactive fallout than previously known or disclosed, and scientific findings that reduced the levels at which exposure to radiation was deemed safe. As a result of, and in addition to, the above findings, the Petition and accompanying materials argue that higher than expected health consequences and costs of health care, medical surveillance, environmental cleanup, and radiological monitoring, as well as lower than expected investment returns from the Nuclear Claims Fund, constitute changed circumstances. The Petition refers to the following studies and factors regarding "changed circumstances" and the "manifest inadequacy" of Compact provisions:

**Declassified Information.** According to the Petition, when the Compact and Section 177 Agreement were written, most nuclear test injuries and damages were attributed to the Bravo hydrogen bomb test of 1954. In the early 1990s, the United States government declassified information that revealed the yields of the other 66 weapons tests. On the basis of this new information, experts for the RMI challenged the notion that only four atolls were exposed to dangerous levels of radiation from the U.S. nuclear weapons program.[40]

**New and Updated Scientific Findings.** According to the Petition, in 1997 and 1999, EPA issued two directives that established a 15 millirem (mrem) annual dose limit. Prior to the late 1990s, most scientific studies assumed a safe level of exposure to be 100 mrem per year above background levels of radiation (external plus internal doses). When the Compact was agreed upon, the accepted dose limit was 500 mrem per year. The EPA's 15 mrem standard, adopted by the Nuclear Claims Tribunal, would imply higher cleanup costs and at least nine additional atolls that were exposed to dangerous levels of radioactive fallout. The Biological Effects of Ionizing Radiation Committee, 1990 (BEIR V) asserted radiation exposure to be

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[39] RMI officials assert that U.S. compensation for medical infrastructure, health care, and capacity building in the RMI would reduce reliance upon the United States and support services for exposed populations as well as address long-term, "inter-generational problems and illnesses," related to the nuclear tests, at a fraction of the cost of funding health care in either the United States or other Pacific Island entities such as the Northern Mariana Islands and Guam. See Holly M. Barker, Ph.D., "Staff Briefing on the RMI's Changed Circumstances Petition" (March 26, 2004); Changed Circumstances Petition, "Attachment VI: Medical Analysis," by Neal A. Palafox, MD.

[40] Holly M. Barker, Ph.D., "Staff Briefing on the RMI's Changed Circumstances Petition," ibid.

almost nine times as damaging as that estimated by the 1972 Committee (BEIR I).[41] A study by Mauro and Behling asserted that whole body doses from external radiation were more than twice as high as previous estimates while estimates of thyroid doses to residents of Rongelap and Utrik were underestimated by 10-20 times.[42]

**Compact Funding Proved to Be Manifestly Inadequate.** The Petition claims that the higher costs associated with health care, medical surveillance, and radiological monitoring of Marshallese citizens and their atolls could not reasonably have been identified at the time of the 177 Agreement. Medical and related programs established by the Compact were "grossly inadequate." Furthermore, the investment returns on the Nuclear Claims Fund of $150 million were expected to generate $270 million over the 15 years of the first Compact term — a 12% annual rate of return or approximately $18 million per year — to be distributed mainly among the 177 Health Program, trust funds for the four atolls, and the Nuclear Claims Tribunal. However, the petitioners argue that the Fund lost 15% of its value in 1987, primarily in the U.S. equity market, and that it suffered major losses in all investment markets in 2001-02. According to the Tribunal, the Fund earned approximately $160 million rather than $270 million (1986-2001) as projected when the Compact was negotiated. The Petition contends that greater than expected claims and lower than anticipated interest earnings constitute changed circumstances. To make payments to the NCT and atoll distribution authorities, the corpus of the Fund has been nearly depleted with only about $4 million remaining and approximately $15.7 million in unpaid awards in 2005.[43] See **Appendix C**.

## The Administration Report

In November 2004, the Bush Administration, in response to Congress' request for an evaluation of the RMI Petition, issued a report rejecting the argument that the petition's claims constituted "changed circumstances." The report argues that the "mixed earnings record" of the Nuclear Claims Fund and high medical care demands do not provide bases for a funding request under the "changed circumstances" provision of the Section 177 Agreement. The report suggests that the NCT granted personal injury awards too liberally. For example, according to the report, the Tribunal provided payments for medical conditions that are not recognized under U.S. radiation injury compensation programs, and to persons with low likelihood of exposure, including descendants of affected individuals (to which transference of nuclear effects is not proven). The Administration also states that the enrollment of "ineligible" persons in the Four Atoll Health Care Program (177 Health Program)

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[41] "Health Effects of Exposure to Low Levels of Ionizing Radiation, Report of the Advisory Committee on the Biological Effects of Ionizing Radiation" (BEIR V), National Academy of Sciences-National Research Council, Washington, D.C.

[42] Changed Circumstances Petition, "Attachment II: Scientific Analysis — An Overview of the Technical Basis for Changed Circumstances," by John Mauro, Ph.D. and Hans Behling, Ph.D.

[43] [http://www.nuclearclaimstribunal.com]

"remains a concern." Furthermore, there were no losses or damages to property that "could not reasonably have been identified" at the time of the 177 Agreement and that would thus constitute changed circumstances. The report adds that there is no legal basis under the *Changed Circumstances Clause* for funding health education, occupational safety, and community programs.

The Administration disputes the Petition's scientific claims. It argues that the middle atolls south of Bikini, Enewetak, Rongelap, and Utrik were not exposed to dangerous levels of radioactive fallout. It states: "The weight of expert scientific evidence indicates that the present impact of radioactive fallout on the Marshall Islands is limited to the northerly atolls and islands...most historically inhabited islands in the northern atolls could be resettled under specific conditions."[44] The report cites the *Nationwide Radiological Survey*,[45] which was commissioned by the RMI with funding provided by the U.S. government and completed in 1994. The Survey's results, which were rejected by the Nitijela, the RMI Legislature, found that only four atolls — Bikini, Enewetak, Rongelap, and, to a lesser extent, Rongerik — contained unsafe levels of radiation or would require limited remediation or dietary restrictions. The Administration challenges the RMI assertion of a nine-fold increase in the Biological Effects of Ionizing Radiation (BEIR) Committee's estimates of risk from radiation exposure and contends that Behling's estimates of average external doses of radiation are about twice has high as those of other experts.

The Administration report denies that past cleanup efforts on the Marshall Islands were inadequate or conducted according to obsolete risk standards. Contrary to RMI assertions, the report states that the current U.S. dose limit to protect the public from all sources of radiation is 100 mrems rather than 15 mrems. It states:

> Extensive monitoring of individuals on Marshall Islands atolls where cleanup has been effected indicates actual radiation doses are below 0.15 mSv (15 mrem), the value advocated by the Tribunal. RMI cleanup decisions to date have conferred a degree of protection that exceeds all existing U.S. federal agency guidelines as well as the Tribunal's desired standard.[46]

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[44] U.S. Department of State, *Report Evaluating the Request of the Government of the Republic of the Marshall Islands*, op. cit., p. iii.

[45] Steven L. Simon and James C. Graham, "Findings of the Nationwide Radiological Study," 1994. See also Steven L. Simon and James C. Graham, "Findings of the First Comprehensive Radiological Monitoring Program of the Republic of the Marshall Islands," *Health Physics*, vol. 73, no. 1 (July 1997).

[46] U.S. Department of State, *Report Evaluating the Request of the Government of the Republic of the Marshall Islands*, op. cit., p. 7.

# Analysis and Discussion of Selected Scientific, Methodological, Policy, and Legal Bases of the Changed Circumstances Petition

The *Changed Circumstances Petition* relies upon scientific, methodological, policy, and legal assumptions that may be disputable or require further inquiry. The following section analyzes and discusses several issues related to key personal injury, health care, and property damages claims in the Petition. These include expected radiation-related illnesses in the Marshall Islands; the methodology for determining the value of "lost use" of damaged properties; the appropriate standard of risk (annual dose limit) for determining cleanup levels; and the extent of radioactive fallout. Finally, this report discusses possible legal options for the RMI in pursuing nuclear damages claims.

## Cancer Estimates[47]

The magnitude of potential future requests for personal injury compensation in the Marshall Islands may be deduced from cancer estimates prepared by the NCI in September 2004.[48] Among the approximately 14,000 persons in the Marshall Islands during the 1946-1958 period of nuclear testing, NCI estimated that about 6,130 cancers would occur over their lifetimes. About 5,600 of those cancers would have occurred even if the nuclear tests had not taken place (the baseline risk), and about 530 were estimated to be caused by fallout from the tests. Therefore, the NCI study estimated that the nuclear testing program would increase the cancer rate for the entire exposed population by about 9% above the baseline.

NCI's baseline cancer risk estimate was derived from cancer rates for all races, adjusted to reflect statistics for ethnic Hawaiians. Estimates of the additional risk posed by the nuclear testing program were based on urine samples collected on two nearby atolls after the largest test (BRAVO), whole-body data collected years later, and a 1995 radiological survey of the entire Marshall Islands.

Although NCI estimates that less than 10% of the projected cancers among the testing-exposed population would be caused by the nuclear tests, those cancers are indistinguishable from the 90% of cancers that would have occurred anyway. Therefore, to ensure compensation of the testing victims, everyone suffering from the specified types of cancer should be eligible for awards. This has been the policy of the Nuclear Claims Tribunal and is similar to the way persons exposed to Nevada nuclear testing are compensated under the "downwinders" program.

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[47] Prepared by (name redacted), Specialist in Energy Policy.

[48] U.S. Dept. of Health and Human Services, National Institutes of Health, National Cancer Institute, *Estimation of the Baseline Number of Cancers Among Marshallese and the Number of Cancers Attributable to Exposure to Fallout from Nuclear Weapons Testing Conducted in the Marshall Islands*, September 2004. Prepared for Senate Committee on Energy and Natural Resources.

The NCI report estimates that about half the 6,130 cancers projected for the nuclear testing population "are yet to develop or be diagnosed."[49] The report also notes that 2,046 personal injury awards had been made through June 30, 2004. This would indicate that over 3,000 claims may have yet to be filed among persons alive during testing. If eligibility is extended to persons born after the end of the testing period, the number of potential additional claims could be far higher, assuming baseline cancer rates remain steady.

## Loss of Use Methodology[50]

The loss-of-use methodology, which is the same for both the Enewetak and Bikini claim, was developed by a consulting firm under contract for counsel for claimants and the NCT, which provided many of the estimation parameters and assumptions.[51] According to the consulting firm's report, no alternative methodologies were explored or used.[52] The resulting estimates of the dollar value of loss-of-use were adjusted and awarded by the NCT as damages (or reparations) to the Enewetak and Bikini peoples.[53] The adjusted estimates are also the amounts requested in the *Changed Circumstances Petition*.

In general, the methodology used by the NCT to estimate the value of the lost use of the claimants property is viewed as reasonable and appropriate. For several reasons, however, the specific application of the methodology — much of the critical data used, many of the assumptions, and certain statistical procedures applied (i.e., the sampling technique and the regression model) — result in past and future loss-of-use estimates that appear to be overstated, which could lead to possibly excessive total damages claimed and awarded by the NCT. The main problem is with the use of inflated average rents per acre, which are estimated by applying an exponential regression model to unrepresentative sample data that largely reflect government-influenced rents rather than competitive, free-market levels.[54] This leads to an apparent overestimate of not only past loss-of-use, but because estimated rents is a

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[49] Ibid., p. 14.

[50] Prepared by (name redacted) , Specialist in Public Finance.

[51] *Appraisal Report of the Loss in Value in Enewetak Atoll, Republic of Marshall Islands for the Nuclear Claims Tribunal.* The Hallstrom Group, Inc., and Raymond A. Lesher & Co., Ltd., May 17, 1996; *Appraisal Report of the Aggregate Loss in Use Value in the Bikini Atoll in the Republic of Marshall Islands.* Report written for Mr. Jonathan Weisgall, Chartered. The Hallstrom Group, Inc. November 19, 1997. Both the Hallstrom Group, Inc., and Raymond Lesher & Co. Ltd., are real estate appraisal firms.

[52] For the Bikini claim, the NCT had access to a second set of independent estimates from a report written by the New Zealand firm of Darroch Limited for the Defender of the Fund. That report used the same methodology as in the NCT report, but made fewer assumptions. Since the NCT did not use these estimates, but used the estimates of the Hallstrom Group to award damages instead, this second report is not discussed.

[53] Nuclear testing occurred on Enewetak and Bikini, but claims are pending in the case of Rongelap, Utrik, Ailuk, and Likiep, which, though not directly bombed, experienced radioactive fallout.

[54] The discussion on page 21of this report elaborates on this point.

critical variable used as an input into future-loss-of-use calculations, also to an overestimate of future loss-of-use as well.[55]

The methodology also 1) assumes that more land is lost to use, and for longer periods than is actually the case, 2) undervalues the rentals on alternative atoll habitation, and 3) assumes that recipients of rental proceeds, as consumers and savers, would have saved 100% of the rental proceeds. Each of these assumptions overestimates past loss of use. Alternative methodologies or assumptions may have led the NCT to a different outcome.

**The NCT Methodology.** The methodology used by the NCT to estimate the value of the loss-of-use of lands belonging to the people of Enewetak and Bikini attempts to calculate the fair market rental value of those portions of the Enewetak and Bikini atolls that the people were unable to use, as a result of their evacuation and use (appropriation) by the U.S. government. According to the NCT, this rental value represents an estimate of the rents that the U.S. government should have paid (but were not fully paid, according to the claimants) to the atoll residents, as proprietors, for the use of their land. Compensation is based on estimated rental values, in lieu of land asset values, because the underlying assumption is that the U.S. Government did not "take" or purchase the land but instead used it, with the consequence that the inhabitants were unable to use it. There is generally a close mathematical relationship between rentals and land values.

Loss-of-use includes not only the period when the United States tested the nuclear bombs — roughly the period from 1946 to 1958 — but the period during which the islands remain unsafe due to continued dangerous levels of radiation contamination, which, for some of the islands at least, is roughly the period from 1958 to 2027.[56]

More specifically, the estimate of total loss-of-use is the sum of two components: past loss-of-use, which is the present value of rents that should have been paid from the time of evacuation to the date of the appraisal reports' publication, and future loss-of-use, which is the present value of estimated rents from the reports' publication dates to that estimated date in the future (as described below) when the lands are decontaminated and usable. In addition, as part of the past loss-of-use estimates, the NCT also awarded what it called a "prejudgment interest," which is the interest income earned on the original judgements from the time they were determined to the time they were awarded. See **Table 1**.

**Description of Past Loss-of-Use Methodology.** For Enewetak, past loss-of-use consists of the estimated rents on the entire atoll (1,952.6 acres) from the onset of evacuation (December 21, 1947) to the date of return on October 1, 1980. However, when the Enewetak people were allowed to return on October 1, 1980, they

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[55] See also CRS Report for Congress #RL33029, *Loss-of-Use Damages From U.S. Nuclear Testing in the Marshall Islands: Technical Analysis of the Nuclear Claims Tribunal's Methodology and Alternative Estimates*, by (name redacted).

[56] Memoranda of Decisions and Order for Enewetak and Bikini attached to the Changed Circumstances Petition.

were allowed to safely use only 646.82 acres of the atoll — 1,305.78 acres continued to be off limits due to dangerous levels of radioactive contamination. Thus, past loss-of-use includes the estimated rents on this 1,305.78 acres from October 1, 1980, to May 16, 1996, which is the date of the Hallstrom Group's appraisal report. For Bikini, past loss-of-use is the estimated rental value of all the atoll (the 1,889.36 acres) from March 7, 1967 to November 18, 1997, when the Bikini appraisal report is dated. The methodology assumes that the loss-of-use was continuous and uninterrupted — that the islanders never returned to their atoll.[57]

**Table 1. The NCT's Estimated Damages for Loss-of-Use, by Component**

($ in thousands)

| Type of Loss | Enewetak | | Bikini | |
|---|---|---|---|---|
| | Time Period | Amount ($ thousands) | Time Period | Amount ($ thousands) |
| Past Lost Use | 12/21/47 to 5/16/96 | 149,000 | 3/3/46 to 11/18/97 | 163,731 |
| Future Lost Use | 5/17/96 to 5/17/2026 | 50,154 | 11/19/97 to 11/18/2027 | 68,420 |
| Sub-Total | | 199,155 | | 232,150 |
| Pre-judgment Interest | 1/97 to 4/2000 | 44,845 | 5/98 to 3/2001 | 45,849[a] |
| Grand Total (rounded) | 8/3/2000 | 244,000 | 3/5/2001 | 278,000 |

**Sources**: Memoranda of Decisions and Order for Enewetak and Bikini attached to the Changed Circumstances Petition; and Bill Graham. *Outline of the Prepared Remarks for Congressional Staff Briefing.* The Operations of the Marshall Islands Nuclear Claims Tribunal Established Pursuant to U.S. Public Law 99-239. April 23, 2004.

**Notes**: a. Pre-judgment interest on loss-of-use for Bikini is not available and was estimated by CRS based on the other available data. The Hallstrom Group estimates of past lost use are 60% greater than the Darroch report estimates; for future loss-of-use, the Hallstrom report estimates are nearly 200% greater than the Darroch report estimates.

More specifically, the value of past lost use is calculated by: 1) estimating average rents per acre (which are assumed to be the same for Enewetak and Bikini)

[57] Some of the Bikinians returned to the atoll in June 1969, but had to be re-evacuated in August of 1978 due to continued high and dangerous levels of radioactivity from nuclear contamination. The islands of Enyu and Bikini were returned to, and inhabited by, the Bikinians in 1985 and 1989, respectively. The appraisal reports assume, based on instructions from the NCT, that there was no return and that the loss-of-use was continuous and uninterrupted.

for each year of denied use;[58] 2) determining the acreage of denied use for Enewetak and Bikini for each year,[59] 3) multiplying, for each year of lost use, beginning with the year of evacuation, estimated average rents per acre by the number of acres determined to be lost to use, 4) subtracting the use or rental value of alternative atoll habitation (Ujelang in the case of Enewetak and several alternative atolls in the case of Bikini); 5) deducting, for each year, any prior compensation paid as rent for the actual use of Enewetak and Bikini, or for the loss-of-use by the Enewetakians and Bikinians as a consequence of the U.S. government's use; 6) multiplying each of these estimated annual rents by a compound interest factor (which is a figure that accounts for the interest that would have been earned on the annual rents up to the time of valuation), 7) adding the interest income on the returns from investing the rental proceeds in U.S. 30-year bonds; and 8) summing each year's interest-adjusted estimated rentals cumulatively (each of the annual figures from step 4) over all the years during which the Enewetak and Bikini islanders were deprived of their land (from December 21,1947 to May 16, 1996, for Enewetak; from March 7, 1946, to November 18, 1997 for Bikini).

**Pre-Judgment Interest Methodology.** Pre-judgment interest is the interest income (or return) that accumulates on the original award of $199,154,811 (Enewetak) and $232,150,821 (Bikini) compounded from the original date that the loss-of-use claims were heard to the time of the awards. For Enewetak this is the 40-month period from January 1997 to April 2000; for Bikini this is the 33-month period from May 1998 to March 2001.[60] In effect, this pre-judgment interest assumes that the loss-of-use awards should have been paid when the claims were heard as compared to when either the estimates were generated and reported to the NCT, when the claims were actually awarded, or when the claims will be paid, if ever.

**Description of Future Loss-of-Use Methodology.** Future loss-of-use begins on the day after the damage estimates were reported (May 17, 1996, for Enewetak; November 19, 1997, for Bikini) and continues until such time as the claimants are estimated to be allowed to return to a safe homeland (May 16, 2026, for Enewetak; November 18, 2027, for Bikini). The value of future loss-of-use is calculated as the present discounted value of the estimated annual rents over this time period.

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[58] Note that average rents have to be estimated since there were no actual leases of land on Enewetak or Bikini from which to obtain reliable actual rents on comparable properties.

[59] There is some reported difference in the total acreage of the Bikini atoll depending on the survey source. The Hallstrom report assumes the total acreage is 1,889.63; the Darroch report assumes it is 1,848.34. The NCT uses the higher of the two.

[60] As discussed in section two, the relevant dates are as follows: for Enewetak the Hallstrom loss-of-use estimates report is dated May 16, 1996; the report was transmitted to counsel and the NCT in October 1996; the claims hearings were conducted in January, 1997; and the award was granted on April 13, 2000. For Bikini, the Hallstrom loss-of-use estimates report is dated November 19, 1997; the report was transmitted to the NCT and filed in April 1998; the claims hearings were conducted in May, 1998; and the award was granted on March 5, 2001.

More specifically, for Enewetak, future loss-of-use is the value of projected foregone rental income on the 1,305.78 acres from the period from May 17, 1996 to May 16, 2026, (which is the estimated date that the 1,305.78 acres of Enewetak atoll will be sufficiently decontaminated to permit its safe use); for Bikini, future loss-of-use is from November 19, 1997 to November 18, 2027 (which is the estimated date that the Bikini islanders will have full use of their atoll once again). These dates of return were determined by the NCT. Each year's projected rentals — again the product of *estimated* average rents per acre and the projected (or assumed) lost acreage — is discounted at the assumed uniform nominal interest rate of 8%. Average rents per acre are assumed to start at $4,105 for Enewetak, and $4,167 for Bikini, and to remain constant for each year throughout the forecast period. (Each of these rates is the rate projected in the final year of the past loss-of-use estimates, as discussed above.)

**Assessment of the Methodology.** In general, the methodology used by the NCT to estimate the value of the lost use of the claimants' property is viewed as reasonable and appropriate, although, as discussed below, the specific assumptions, data, and statistical procedures can produce inflated loss-of-use estimates.

If there was a contract (either implied or explicit) for the lease of Enewetak and Bikini atolls which was not adequately paid for; or, if there was no contract — if the United States is responsible for the inability of the Enewetakians and Bikinians to use their land — the appropriate methodology would be to estimate the dollar value of that loss-of-use or, equivalently, the value of the U.S. government's use. This would be the sum of the present (compounded) rental value of past rents and the present (discounted) value of projected future rents, as was done in the NCT reports. These rental values would be the fair market average rents per acre times the relevant acreage for the length of time that it was rendered unuseable as a result of U.S. government activities. Indeed, the model underlying the methodology — the capital asset pricing model — is rooted in sound economic and financial theory, and the methodology itself is standard methodology used by economists, as well as the courts, in solving similar problems.

Furthermore, the NCT's methodology attempts to adjust each year's estimated rentals owed (this might be called the gross rentals) for 1) any rentals previously paid by the U.S. government, 2) the value of alternative accommodations (living arrangements) provided and financed by the U.S. government, and 3) the interest that would have been earned on these rentals. In estimating past loss-of-use, hundreds of actual lease transactions from two distant atolls in the RMI are sampled to estimate average rents per acre for each year — a critical variable upon which both past and future loss-of-use estimates (and, therefore, the total damages awarded) are based. In the estimation of the future loss-of-use, the methodology appropriately attempts to estimate the value of such loss-of-use as the present discounted value of projected rentals up to the date of return.

For several reasons, however, the specific application of the methodology — much of the critical data used, some of the assumptions, and certain statistical procedures applied (i.e., the sampling technique and the regression model) — produce past and future loss-of-use estimates that appear to be overstated, which leads to possibly excessive total damages claimed and awarded by the NCT. The

main problem is with the past loss-of-use estimates, but since these are carried over into future loss-of-use calculations, those estimates appear to be inflated as well.

**Overestimates of Past Lost Use.** Past loss-of-use damages appear to be overstated for several reasons. First, and foremost, the methodology uses inflated estimates of average rents per acre, a critical variable used as an input into both past- and future-loss-of-use calculations. To estimate average rents per acre, the methodology uses a nonrandom sample of average rents per acre from lease transactions from distant atolls which may not reflect the rents on Enewetak and Bikini. Further, the sample rent data largely reflect rents set by government decree rather than as the equilibrium of supply and demand for the use of land in a competitive real estate market (which is the underlying assumption of the type of model used to estimate loss-of-use). Since 1979, the RMI cabinet has established above market rentals on government involved leases — which represent the vast majority of lease transactions in the RMI. On January 1, 1979 the official government rental was established at $2,500/acre; On October 1, 1989 the rate was increased to $3,000/acre. The official rate is a benchmark for all other leases, and, in effect, establishes a "rent floor" for all other lease transactions. Almost all land and buildings are leased at this official rate. During the 1970's average rents, which were probably still high due to U.S. government leases, averaged $597/acre according to the Darroch report and $511/acre according to the Hallstrom report.

A second reason for overstated past loss-of-use, is that the methodology applies an exponential regression model to the inflated average rents sample data, data biased by the $2,500 and $3,000 per acre official rates. In effect, the official government rents of $2,500 and $3,000 per acre for recent years makes it appear that the overall trend of rents since 1946 is exponential, which further compounds the upward bias in the estimated average rents per acre, and thus overestimates past loss-of-use. In reality, rents reflect values, either agricultural land values or urban land values, which fluctuate based primarily on economic circumstances.

A third reason for the upward bias in the loss-of-use estimates pertains to the quantity of land that is assumed to be denied the people of Enewetak and Bikini. Even though some portions of the affected atolls were completely destroyed or pulverized by the nuclear testing — 182.46 acres of Enewetak (9.34% of the atoll's land acreage) and 69.67 acres of Bikini (3.69% of the land acreage) — the methodology assumes that they were not. The result is that land that no longer exists continues to earn inflated rents at compound interest through 2026 for Enewetak and 2027 for Bikini. Given the equivalency between the value of land and the rentals earned on that land, the appropriate methodology would compensate the landowners for the value of the destroyed portions of the two atolls, determined at the time of destruction plus interest. Such value would be based upon *reliable* estimates of average rentals that would then be capitalized to determine a market value. This "present value" would then be adjusted for the time value of money up to the time that the claim would be awarded.

Fourth, the assumption is made that the rental value of alternative properties provided to the claimants by the U.S. government (the use gained for these substitute living quarters on Ujelang and Rongerik) is generally only 58% of the average rents times the land area of Ujelang in the case of Enewetak; and either 75% or 58% times

the amount of land on Rongerik and Kili in the case of Bikini.[61] While the deduction for value of alternative habitation is viewed as fair and appropriate, the assumption that the average rentals were a fraction of those on the Enewetak and Bikini atolls is problematic. Not only does this carry over the upward bias from the prior calculations — the estimation of foregone rents on the Enewetak and Bikini atolls — but it is inconsistent with the estimating assumptions, per the instructions of claimant's counsel and the NCT, that the methodology will not base value on economic use, such as production of copra or potential for nuclear storage.[62] Also, there is evidence that the value of alternative domiciles might have been greater due to the investment of the United States in building houses and other infrastructure.

The NCT methodology also makes some assumptions regarding the timing of denied use, in the case of Bikini atoll, that raises the loss-of-use damage estimates. In particular, it assumes that the Bikinians' loss-of-use was continuous and there was no return. On March 7, 1946, 167 Bikini islanders (the inhabitant proprietors) were evacuated, but some of the Bikinians returned to two islands of the atoll (Bikini and Eneu islands) from June 1, 1969, to July 31, 1978. While it is true that they returned to a contaminated island, internal consistency in the methodology requires that the return be counted as such. The implication for the loss-of-use estimation is that the rentals on these two occupied islands of the atoll would be lower or zero owing to this contamination, and that the value of their stay on alternative atolls should not be deducted from the overall rental.

Finally, the methodology to estimate past lost use assumes that the lessors of the affected RMI atolls would have invested 100% of the rental proceeds in 30-year Treasury bonds. This assumes that the islanders would have saved 100% of the rental proceeds. A more realistic assumption would be that they would invest a fraction of the rental proceeds equal to the assumed savings rate, and that they would have consumed the remainder. The amount saved based on this calculation would have been invested or saved in a savings account, or even in U.S. Treasury bonds, at some appropriate interest rate.[63]

**Overestimates of Future Lost Use.** With respect to future loss-of-use, CRS finds again that the present discounted value methodology is generally appropriate, but that the estimated dollar amounts are inflated or overstated. The

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[61] This adjustment is more involved for Bikini because of the relocation to four different atolls, Rongerik, Kili, Ejit, and Majuro, for different time periods. On a per-acre basis, the stay on Rongerik and Ejit is valued at 100% of the Enewetak rents, but this was from slightly more than two years from March 7, 1946, to March 14, 1948, for Rongerik. For more detail see the Memoranda of Decisions and Order for Enewetak and Bikini attached to the Changed Circumstances Petition.

[62] Memorandum from Jonathan M. Weisgall to Philip A. Okney, Defender of the Fund. February 23, 1998.

[63] Another possible source of overstatement is in the adjustment for prior loss-of-use compensation. The Bush Administration argues that the extent of such prior compensation used in the methodology is greater than is allowed for in the NCT reports. CRS was unable for independently verify this, but if so, this also would contribute to inflated past lost use values.

primary reason that future loss-of-use is overstated is that the procedure carries over into the calculation of projected future rents the inflated estimates of average rents per acre from the past loss-of-use. Thus, for Enewetak, rents for 1997-2026 are projected to be the same as for 1996 ($4,105/acre); for Bikini, rents for 1998-2027 are the same as for 1997 ($4,167/acre). The assumption that the Enewetakians and Bikinians could return to use the vaporized islands also contributes to this overestimate.

## Environmental Restoration[64]

The residents of the Marshall Islands have expressed ongoing concern about the adequacy of previous efforts of the United States to clean up radioactive contamination in soil from past nuclear tests. Scientific data suggest that the type and level of radioactivity in most areas are not likely to pose a significant health risk from external exposure to the soil itself. *Internal* intake of radioactivity from the consumption of foods grown on contaminated soil could pose a higher risk. However, the health risk from internal consumption would depend on numerous factors, such as the concentration of radioactivity absorbed and the amount of time it remains present in the body. The degree of such risk to residents of the Marshall Islands has been uncertain and controversial.

The Republic of the Marshall Islands (RMI) asserts that the United States performed prior cleanup according to a less stringent standard than would be required in the United States today. It further argues that additional cleanup is warranted to meet the current U.S. standard, noting the policy of the International Atomic Energy Agency (IAEA) that cleanup of contamination caused by another nation should be at least as stringent as cleanup within the country of release. The RMI also asserts that the area of contamination is larger than originally thought, and therefore argues that further cleanup is warranted.

The 1986 Compact of Free Association between the United States and the RMI permits the awarding of additional financial compensation because of a change in circumstances. Consequently, the RMI petitioned, and the Nuclear Claims Tribunal agreed, that the United States should award additional financial compensation to perform cleanup according to a more recent U.S. standard, and over a broader area than had been addressed with prior efforts. However, the Bush Administration argues that federal funding to pay this claim is not warranted, asserting that radiation protection standards applied to past cleanup efforts have not become stricter, the area of known contamination has not changed, and radiation doses are currently safe according to recent medical tests.

The following sections discuss the Tribunal's decision on additional compensation for environmental restoration, the IAEA's policy on environmental cleanup, the cleanup standard proposed by the RMI, variables that would determine whether the standard that the RMI wishes to use would be applied to the cleanup if it were performed in the United States, the Bush Administration's viewpoint on the

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[64] Prepared by David Bearden, Analyst in Environmental Policy.

cleanup standard, and disagreement between the RMI and the Bush Administration regarding the known area of contamination.

**Tribunal Decision on Additional Compensation.** The Nuclear Claims Tribunal recommended that the United States pay additional compensation of $251.5 million to the people of Bikini Atoll for environmental restoration of contaminated lands. The total estimated cost of the restoration is $360.5 million. The Tribunal agreed to a lower amount because of adjustments made from $109 million in compensation already paid by the United States in prior years. The Tribunal also recommended $91.7 million in additional compensation to the people of Enewetak Atoll for environmental restoration. The total estimated cost of the restoration of this atoll is $101.7 million. The Tribunal agreed to $10 million less than this amount, again because of adjustments made from compensation already paid by the United States in past years.

The award decisions for both atolls are based on the estimated costs of: 1) removing and replacing some of the contaminated soil; 2) disposing of excavated soil by using it as a sealed filler to construct a causeway between various islands; and 3) treating and monitoring the remaining contaminated soil with potassium, which in other locations has proven to be effective in blocking the uptake of radioactivity by food crops. The RMI reports that the cost estimates for the above activities were calculated based on data from DOE.

The RMI estimated the cleanup costs using a standard U.S. methodology for selecting remedial and disposal actions from a variety of alternatives, ranging from the least to the greatest potential cost. For example, the RMI chose a potentially more cost-effective combination of soil removal and potassium treatment, rather than the possibly more costly option of removing all contaminated soil.[65] For disposal of removed soil, the RMI considered the more costly option of shipping the contaminated material to the closest disposal facility in the United States, but selected the sealed causeway alternative to provide a less costly means of local disposal that also would provide an infrastructural benefit to the local population.

**IAEA Policy on Environmental Cleanup.** Issued in November 2003, IAEA's current policy on environmental cleanup applies to contamination resulting from past discharges or disposal of radioactive materials, nuclear accidents or other events, and nuclear weapons tests,[66] such as those that the United States conducted in the Marshall Islands during the 1940s and 1950s. In its petition for additional compensation from the United States, the RMI argues that more stringent U.S. standards warrant further cleanup. In support of its argument, the RMI's petition refers to the "position" of the IAEA that "....policies and criteria for radiation

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[65] However, the estimated cost of potassium treatment is based on *current* costs. The RMI reports that potassium treatment and monitoring of contaminated soil that is not removed would be necessary for the next 100 years to ensure the safety of food crops. The long-term costs of this treatment method and monitoring, as opposed to the current dollar costs of removing all contaminated soil, are uncertain.

[66] International Atomic Energy Agency. *Safety Standard Series: Remediation of Areas Contaminated by Past Activities and Accidents*. WS-R-3. November 2003. p. 3.

protection of populations outside national borders from releases of radioactive substances should be at least as stringent as those for the population within the country of release."[67]

The above statement is from an IAEA policy on transboundary radiation exposure, released in 1985 as part of the Agency's safety series.[68] Allan Richardson, a scientific consultant who assisted the RMI in the preparation of its petition, also referred to the above 1985 policy in his testimony before the House Resources Committee on May 11, 1999, in support of his argument that more stringent U.S. cleanup standards should be applied in the Marshall Islands.[69] However, this policy primarily applied to situations in which a nuclear facility located close to the border of another nation released radiation that resulted in exposure to foreign populations across borders, rather than to the cleanup of contamination from past nuclear tests or other events.

The IAEA published over 100 policy documents in its safety series through 1996, including the above 1985 policy. Since that time, the IAEA has superseded these documents with a new series, consolidating and revising many of its former documents.[70] The IAEA released its current policy document on environmental cleanup in November 2003, as noted above. It consolidates many of the policies from the former safety series, but it does not include a policy on cleanup of contamination outside national borders.

The IAEA's current safety standards for radioactive discharges do include a policy on transboundary exposure similar to the above 1985 policy, recommending that "radiation protection of populations outside national borders from discharge of radioactive substances should be at least as stringent as those for the population within the country of discharge."[71] This policy applies to *ongoing* activities ranging from the operation of nuclear reactors and reprocessing facilities to medical and research purposes, but not to past events, such as nuclear weapons tests.[72]

The IAEA's current policy on the cleanup of radioactive contamination states objectives for protecting public safety, recommends a framework for individual

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[67] Nuclear Claims Tribunal. *Memorandum of Decision and Order in the Matter of the People of Enewetak, et al., Claimants for Compensation*. NCT No. 23-0902.

[68] International Atomic Energy Agency. *Assigning a Value to Transboundary Radiation Exposure*. Safety Series No. 67. 1985.

[69] 106th Congress. House Resources Committee. *The Status of Nuclear Claims, Relocation, and Resettlement Efforts in the Marshall Islands*. Testimony of Allan C.B. Richardson. Hearing, May 11, 1999. Serial No. 106-26. p. 182.

[70] See the International Atomic Energy Agency website for the full text of both the current and former safety series. However, the 1985 safety document on transboundary exposure is not available online at this site, and is no longer in print. [http://www-ns.iaea.org/publications]

[71] International Atomic Energy Agency. *Safety Standard Series: Regulatory Control of Radioactive Discharges to the Environment*. WS-G-2.3. July 2000. p. 23.

[72] Ibid., p. 2.

nations to establish their own legal and regulatory requirements to achieve these objectives, and provides guidance for the development and implementation of remedial actions. Cleanup in contaminated areas is recommended if the cumulative annual dose of radiation from all sources, including natural background levels, would exceed 10 millisieverts (1,000 millirems or 1 rem).[73] The IAEA guidance specifies that this amount would "normally be assessed as the mean dose for an appropriately defined critical group."[74] However, the IAEA policy does not specify the quantity of individuals or demographics that would constitute a group for the purpose of measuring a mean dose. How to define a dosage group would be left to the discretion of each nation, and whether to perform cleanup and to what degree would depend on each nation's legal requirements.

Neither the former nor the current series of safety standards is legally binding on Member States, including the United States, except in situations in which the IAEA is involved in a specific action at the request of a Member State. To clarify this matter in its current safety series, the IAEA included language in the preamble to each policy document stating that, "The IAEA's safety standards are not legally binding on Member States but may be adopted by them, at their own discretion, for use in national regulations in respect of their own activities. The standards are binding on the IAEA in relation to its own operation and on States in relation to operations assisted by the IAEA."

As such, the IAEA's safety policies constitute recommended guidelines for protecting human beings from exposure to potentially harmful levels of radiation, rather than legally binding or enforceable requirements. Consequently, it appears that IAEA safety policies do not bind the United States to a certain degree of cleanup at sites within or outside its borders, including the Marshall Islands, as long as the IAEA is not involved in carrying out specific actions at the request of either nation. To apply IAEA policy to the cleanup of the Marshall Islands therefore appears to be a policy decision, rather than a legal requirement.

**Cleanup Standard Proposed by the RMI.** Federal radiation protection standards are not uniform in the United States, but vary in stringency among regulatory agencies, and are specific to certain sources and circumstances.[75] The degree of cleanup that the RMI wishes to perform is based on an EPA cleanup

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[73] A "rem" is a unit of measure of exposure to radiation, commonly used in the United States. One rem is equivalent to 1,000 millirems. A "sievert" is a more recent unit of measure of radiation commonly used outside of the United States. One sievert is equivalent to 100 rems.

[74] International Atomic Energy Agency. *Safety Standard Series: Remediation of Areas Contaminated by Past Activities and Accidents*. WS-R-3. November 2003. p. 6.

[75] The General Accounting Office (GAO, now renamed the Government Accountability Office) issued a report in June 2000, which provides an overview of major federal radiation protection standards. It examines the varying stringency of these standards and discusses disagreements among regulators and the scientific community as to what level of radiation exposure is harmful to human health. See, General Accounting Office, *Radiation Standards: Scientific Basis Inconclusive, and EPA and NRC Disagreement Continues*, GAO/RCED-00-152, June 2000.

standard that limits annual radiation exposure from all sources to 15 millirems. This standard establishes the "reasonable maximum exposure" of radiation for an individual above the local natural background level, which EPA deems would be safe without resulting in harmful biological effects. The IAEA's recommended standard of 1 rem of cumulative annual exposure for an "appropriately defined group" is not comparable to EPA's standard or DOE's 100 millirem standard, discussed below, as these latter two standards limit exposure to individuals *above* natural background levels.

Further, these exposure standards do not limit the concentration of radioactivity in soil, groundwater, or surface water. Rather, the allowable concentration to attain an exposure limit would depend on the potential pathway of human exposure resulting from the intended land use. Consequently, the degree of cleanup can differ significantly from site to site. Relatively little cleanup may be required if the potential for exposure were minimal. Conversely, more cleanup may be necessary if there were greater likelihood of exposure. The RMI has based the degree of cleanup that it has planned on the possible risk of exposure from residential and agricultural use on the two atolls.

EPA issued its 15 millirem standard in 1997 in an agency guidance document. This guidance recommends safe levels of human exposure to determine the degree of cleanup at Superfund sites in the United States where radioactive contamination is present.[76] To date, EPA has not proposed this standard in federal regulation, and it is not legally enforceable or binding in the United States. However, EPA issued the standard *based* on an enforceable federal regulation, which requires a degree of cleanup that would result in a cancer risk of no greater than 1 in 1 million, or as much as 1 in 10,000 in certain circumstances.[77]

**Applicability of Standards to Marshall Islands Cleanup.** The RMI asserts that EPA's 15 millirem standard should be used to determine the degree of cleanup in the Marshall Islands, arguing that this standard would apply to the cleanup if it were being done in the United States. However, this is not necessarily the case. If the Marshall Islands were a U.S. territory, DOE presumably would be responsible for the cleanup there.[78] DOE's general standard for cleanup at former nuclear weapons production and test sites specifies an annual individual limit of 100

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[76] U.S. EPA. Memorandum. *Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination*. Office of Emergency and Remedial Response, and Office of Radiation and Indoor Air. OSWER No. 9200.4-18. August 22, 1997. CERCLA is the Comprehensive Environmental Response, Compensation, and Liability Act, which authorized EPA to establish the Superfund program to respond to releases of hazardous substances in the United States to protect human health and the environment.

[77] 40 CFR 300(e)(2)(i)(A)(2)

[78] As required by the Atomic Energy Act, DOE is responsible for cleaning up radioactive contamination at former nuclear weapons production and test sites in the United States, including contamination from activities conducted by its predecessor, the Atomic Energy Commission. However, some of these sites with low levels of radioactive contamination were transferred from DOE to the Army Corps of Engineers in FY1998 for cleanup under the Formerly Utilized Sites Remedial Action Program.

millirems of exposure to radiation. DOE has not promulgated an enforceable regulation for this standard, but has specified it in a non-binding, internal "order."[79] DOE reports that it has used this standard to determine the degree of past cleanup efforts in the Marshall Islands. The Bush Administration asserts that this standard should continue to be used to determine whether additional cleanup is necessary.

The stringency of DOE's cleanup standard is equivalent to the degree of protection provided by the standard that the Nuclear Regulatory Commission (NRC) promulgated in 1991 for protection of the public from radiation released from the operation of nuclear facilities that it licenses, such as civilian nuclear power plants.[80] The NRC's more stringent standard of 25 millirems for cleanup applies to the facilities that it licenses for operation,[81] but not to DOE nuclear weapons sites which are not under the jurisdiction of the NRC.

Although DOE's general cleanup standard is 100 millirems, there is precedent for the Department *voluntarily* agreeing to EPA's 15 millirem standard for cleanup of contaminated soil on at least two former nuclear weapons production sites: Hanford in Washington State, and Rocky Flats in Colorado. Such decisions are made on a site-specific basis, as would be the case for the cleanup of contaminated soil in the Marshall Islands if it were a U.S. territory under the jurisdiction of DOE. The outcome of such a decision is uncertain and would depend on numerous factors, including the extent and cost of cleanup that would be required to prevent exposure to a more stringent degree than the 100 millirem limit that DOE prefers. Consequently, it is uncertain whether the 15 millirem standard would be applied to the cleanup of the Marshall Islands, if the cleanup were being done in the United States.

The extent of cleanup necessary to attain the 15 millirem standard at Hanford and Rocky Flats likely would be significantly less than in the Marshall Islands on a proportional basis, because the land uses at Hanford and Rocky Flats are significantly more restrictive in terms of public access. Consequently, there would be less likelihood of human exposure. Therefore, a greater concentration of radioactivity could remain in the soil and still prevent annual exposure from exceeding 15 millirems at these two sites. Rocky Flats will serve as a National Wildlife Refuge with human access limited to refuge personnel and visitors in certain areas. Hanford is not planned for unrestricted use, but it will continue its function as a waste treatment and disposal facility into the foreseeable future, even after cleanup is complete. Neither site is planned for residential or agricultural use, as the RMI intends for contaminated areas in the Bikini and Enewetak Atolls.

The application of the15 millirem standard to the cleanup of Hanford and Rocky Flats does not necessarily set a precedent for removing radioactive soil to the degree that the RMI wishes. Some therefore may argue that a 15 millirem standard has been

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[79] Department of Energy. Office of Environment, Safety, and Health. *Radiation Protection of the Public and the Environment*. DOE Order 5400.5. Amended January 7, 1993.

[80] 10 C.F.R. 20

[81] 10 C.F.R. 20.1402

applied to cleanup in the United States to the extent that the degree of cleanup necessary to achieve it is practical. Others may advocate that the 15 millirem standard should be applied in all cases to protect human health, regardless of the degree of cleanup that would be needed to limit exposure to that level. The Bush Administration opposes the use of the 15 millirem standard in the Marshall Islands and advocates the continued use of the 100 millirem standard, discussed below.

**Bush Administration Viewpoint on Marshall Islands Cleanup Standard.** In the State Department's report, the Bush Administration argues that the 100 millirem standard is the level of protection that is generally applicable in the United States, and that the United States therefore should not pay for cleaning up the Marshall Islands to a more stringent level. However, the report also acknowledged that "There are multiple U.S. federal standards applied to various cleanups that cover a wide range of doses but in general, they tend to control doses to as far below the 1 mSv [100 millirems] per year limit as is practical."[82] Both the EPA and NRC cleanup standards are more stringent and more recent than the 100 millirem standard that the Administration advocates. Although the NRC standard does not apply to nuclear weapons test sites, the EPA standard could be applied to the cleanup of test sites in the United States at DOE's discretion. The State Department report did not explain the Administration's rationale for not applying EPA's stricter standard to the cleanup of the Marshall Islands.

In advocating the use of the 100 millirem standard, the Administration did not present an alternative cost estimate in the State Department report to conduct additional environmental cleanup in the Marshall Islands. Presumably, an estimate is not provided because the Administration argues that no cleanup is necessary to attain that level of protection. The Administration asserts that medical tests indicate current human doses of radioactive isotopes in the Marshall Islands typically do not result in internal exposure in excess of15 millirems above local natural background levels. These tests measure radioactive material that the human body has absorbed. The Administration argues that the actual dose of radiation absorbed by those tested does not exceed the 15 millirem standard that the RMI wishes to use for cleanup, and is far less than the 100 millirem standard that it recommends, and concludes that additional remediation in the Marshall Islands is therefore not necessary.

**Disagreement Regarding Areas of Contamination.** There have been numerous surveys of radioactive contamination in the Marshall Islands since nuclear weapons tests ceased. Residents of the islands have expressed longstanding concern as to whether these surveys have identified all contaminated areas. The RMI commissioned the Nationwide Radiological Survey in 1994, which was funded by the United States.[83] Many have noted this survey as being the most comprehensive effort to examine levels of radioactivity in soil on islands potentially affected from past fallout, including Bikini, Enewetak, Rongelap, and Utrik Atolls.

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[82] U.S. Department of State, *Report Evaluating the Request of the Government of the Republic of the Marshall Islands*, op. cit., p. 37.

[83] The findings of the survey are available online from the Baylor College of Medicine at [http://radefx.bcm.tmc.edu/marshall_islands].

The findings of this survey were that levels of radioactivity rise with increasing latitude, identifying the greatest contamination in the northernmost islands. Based on the survey's findings, an independent scientific advisory panel concluded that the level of radioactivity in areas inhabited at that time did not pose a significant health risk, but that some cleanup likely would be necessary for certain islands if they were to be resettled or if foods grown on them were to be consumed. The RMI disagreed with these findings based on criticisms regarding accuracy, completeness of data, and credibility of the authors, and claimed that more contaminated areas do exist that pose a health risk. In response, the advisory panel supported the survey's findings, which were upheld by scientific peer review.

The RMI continues to dispute the findings of the 1994 survey, and asserts that potentially harmful contamination is present across a greater area and at lower latitudes, warranting further cleanup. The RMI's petition for compensation for Enewetak Atoll advocated that more contamination surveys are needed to fully identify all areas in need of cleanup to protect the residential population. The Tribunal's compensation decision included $4.5 million to fund such surveys, as part of the estimated cost of environmental restoration. The Tribunal's compensation decision for Bikini Atoll did not specify the costs to perform additional surveys of contamination on those islands.

The Bush Administration supports the findings of the 1994 survey and argues that cleanup of a broader area is therefore not needed to protect the residents of the islands. However, the Administration appears to base its conclusion on the assumption that unoccupied areas with radioactive contamination would not be resettled. The Administration has acknowledged that certain areas in the northern atolls are contaminated to a degree that warrants restrictions on land use, stating "....some islands may never be suitable for communities or food gathering and should remain off limits...."[84] At the same time, the Administration indicated that ".... most historically inhabited islands in the northern atolls could be resettled under specific conditions."[85] However, it did not specify what those conditions might be, or whether the concentration of radioactivity and potential pathways of exposure were examined to determine if cleanup would be necessary to allow resettlement.

If resettlement in currently unoccupied areas were to occur, cleanup may be necessary if the degree of contamination would result in annual exposure to radiation in excess of either the 100 millirem or 15 millirem standard, depending on the concentration of radioactivity and pathway of exposure. Continuing efforts to understand the human health effects of radioactive contamination in the Marshall Islands also possibly could reveal that remediation is necessary to protect the residents in currently occupied areas. For example, if ongoing medical tests administered by the Department of Energy's Lawrence Livermore National Laboratory were to reveal that radiation doses are higher in currently settled areas than present data suggest, decisions could be needed as to whether remediation may be warranted, even if access to unoccupied areas remained restricted.

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[84] U.S. Department of State, *Report Evaluating the Request of the Government of the Republic of the Marshall Islands*, op. cit., p. iii.

[85] Ibid.

## Legal Issues[86]

**Litigation Involving Inhabitants of the RMI.** In the early 1980s, fourteen different groups of litigants representing approximately 5,000 inhabitants of the Marshall Islands brought cases in the United States Court of Claims against the United States to recover damages said to result from United States nuclear weapons testing.[87] The litigants were from three different groups: inhabitants of Bikini Atoll, inhabitants of Enewetak Atoll, and inhabitants of atolls and islands that were not used as atomic test sites. The Court handled the three different groups separately, with the cases in the third category being consolidated. Although these cases were all ultimately dismissed for the reasons discussed below, there are indications that at least some of the litigants are seeking to file suit again.

At the time the cases were filed in the United States Court of Claims, the United States and the government of the emerging Republic of the Marshall Islands were negotiating the Compact of Free Association. The cases were suspended for a time to avoid interference with the negotiations, and when the litigation was allowed to resume, the government moved to dismiss. In the case involving Bikini Atoll inhabitants,[88] the court held that the plaintiffs had stated claims sufficient to invoke the jurisdiction of the court,[89] that the sovereign immunity of the United States had been waived as to the claims, and that at least some of plaintiff's claims would appear to survive a statute of limitations bar.[90] While making no findings as to the validity of the claims, the court allowed the plaintiffs to move forward on the theory that there had been takings in violation of the Fifth Amendment[91] and breaches of an implied-in-fact contract that arose between the people of Bikini and the United States.[92]

In the case involving the inhabitants of the Enewetak Atoll, it was determined that the statute of limitations barred the taking claims of the Enewetak people, that certain other claims were without merit, but that the complaint had stated a breach of contract claim within the jurisdiction of the court.[93] The Court held that the claim that there was a breach of an implied-in-fact contract between the inhabitants and the

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[86] Prepared by Kenneth Thomas, Legislative Attorney.

[87] For a discussion of the details of these cases, *see* Juda v. United States, 13 Cl. Ct. 667 (1987). According to the Court of Claims, the suits claimed damages which ranged from $450 million to $600 million.

[88] Juda v. United States, 6 Cl. Ct. 441 (1984).

[89] *See* The Tucker Act, 28 U.S.C. § 1491(a)(1) (1982).

[90] 28 U.S.C. § 2501 (1982).

[91] The plaintiffs characterized the takings portion of its case as involving the "temporary" takings of lands on the atoll based either on the removal of the inhabitants by the United States government or on the resultant contamination. Juda v. United States, 6 Cl. Ct. at 449.

[92] The plaintiffs argued that the actions of the United States created an implied-in-fact contract which imposed a fiduciary responsibility on the government to protect the health, well being and economic condition of the Bikini people. Id. at 449.

[93] Peter v. United States, 6 Cl. Ct. 768, 773-779 (1984).

United States was not barred by sovereign immunity, and that such claims were sufficient to compel a denial of a motion to dismiss.[94]

In the consolidated cases involving plaintiffs who were not on the Bikini or Enewetak islands, it was decided that the complaints of an unlawful taking were within the jurisdiction of the court and were not barred by the statute of limitations.[95] Further, the United States' motion to dismiss was denied as to the takings claims,[96] although it was allowed as to all other claims of these plaintiffs.[97]

Around the time of these rulings, the Compact of Free Association was agreed to by the United States and RMI. A plebiscite approving the agreement was held, and a Joint Resolution to implement the Compact was passed by Congress.[98] Section 177 of the Compact provides that the United States accepts responsibility for compensation owing to the citizens of the Marshall Islands as a result of nuclear testing between June 30, 1946, and August 18, 1958. This section further provides that compensation shall be determined based on a separate agreement with RMI.

Pursuant to Section 177, this separate agreement between RMI and the United States was negotiated, establishing a Nuclear Claims Tribunal to provide for the settlement of nuclear testing claims. In conjunction with these provisions, however, Article XII of the Section 177 Agreement provided that (1) all claims related to the nuclear testing program shall be terminated; (2) no court of the United States shall have jurisdiction to entertain claims relating to the nuclear testing program; and (3) any such claims pending in the courts of the United States shall be dismissed. Based on these provisions, the United States again filed motions to dismiss the various cases. This time, it argued that the claims were now non-justiciable because they involved a political question relating to the foreign affairs powers of the United States, and because the Section 177 Agreement divested the court of subject matter jurisdiction.

In response to this motion, plaintiffs made a number of arguments, some of which were rejected by the Court of Claims and subsequently by the United States Court of Appeals for the Federal Circuit.[99] For instance, the plaintiffs argued that

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[94] Id. at 779-781.

[95] Nitol v. United States, 7 Cl. Ct. 405, 412-14 (1985).

[96] *Id*. at 415.

[97] *Id.* at 415-16.

[98] Compact of Free Association Act of 1985, Pub. L. No. 99-239 (1986).

[99] The appeals were from the final judgments of the Claims Court in Peter v. United States, 13 Cl. Ct. 691 (1987), and Nitol v. United States, 13 Cl. Ct. 690 (1987), dismissing the complaints of inhabitants of the Enewetak, Rongelap, and other Marshall Islands Atolls. In dismissing these complaints, the Claims Court relied on its decision in Juda v. United States, 13 Cl. Ct. 667 (1987). Although the plaintiffs in the *Juda* case also appealed, that appeal was dismissed with prejudice upon the unopposed motion of claimants, following the enactment of special legislation which appropriated funds for the benefit of the People of Bikini. *See* People of Bikini, Enewetak, Rongelap, Utrik & Other Marshall Islands Atolls v. United (continued...)

while the Compact had been agreed to by the United States and RMI, the United Nations had not agreed to terminate the trust relationship between the United States and the Trust Territories, and that the plaintiffs' rights could not be terminated without this approval. The Court of Claims, however, rejected this argument.[100] Various other legal arguments made by the plaintiff were also rejected.[101]

The Court, however, declined to reach a number of other issues. One such argument made by the plaintiffs was related to the concept of "espousal." Espousal occurs when the government of one country asserts the private claims of its nationals against another sovereign.[102] In such cases, it is established international practice to settle these claims by international agreements. Here, the newly formed RMI appears to have "espoused" the claims of its citizens against the United States for damages from nuclear testing, and then settled those claims under the Section 177 agreement.

As part of the settlement of the espoused claim, RMI agreed to waive the legal rights of its citizens to bring suit in the United States for such damages. Normally, such actions by a sovereign would be sufficient to extinguish claims against another nation. However, the plaintiffs raised an argument that this waiver was not valid as to them, because the injury occurred before the claimants were citizens of RMI.[103] This argument is called the "continuous nationality" rule, a principle of international law which provides that a state does not have the right to ask another state to pay for damages to its citizens if they were not its citizens at the time of the loss or damage.[104] The rationale behind this doctrine is to prevent persons from obtaining citizenship in one state in order to use that nation's powers of espousal to pursue their claims against another state. Under this argument, RMI lacked the legal capacity to espouse plaintiffs' claims, and so the claims would not have been settled by the implementation of the Compact.[105]

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[99] (...continued)
States, 859 F.2d 1482 (Fed. Cir. 1988).

[100] Juda v. United States, 13 Cl. Ct. at 683. Subsequent to this decision, the United Nations Security Council voted to terminate the U.N. Trusteeship Agreement covering the Marshall Islands, apparently making this argument even less tenable.

[101] Some plaintiffs suggested that the Section 177 Agreement did not have the force of a statute of the United States because it was not embodied verbatim in any act of Congress, and the specific terms were not enacted separately. The Court of Claims, however, determined that the section 177 Agreement had the force and effect of law, as section 177 of the Compact incorporated the Section 177 Agreement by reference. *Id.*

[102] Jennifer Joseph, *POWs Left in the Cold: Compensation Eludes American WWII Slave Laborers for Private Japanese Companies*, 29 Pepp. L. Rev. 209, 221 (2001). The doctrine of espousal is based on the traditional view that "only states are subject to international law." *Id.*

[103] The plaintiffs made a statutory argument that if the "espousal claim" was not supported under precepts of international law, then subsequent provisions limiting federal court jurisdiction over the claims were not operative. Juda v. United States, 13 Cl. Ct. at 684-686.

[104] 8 M. Whiteman, Digest of International Law 1234, 1241 (1970).

[105] Significantly, the United States follows the doctrine of "continuous nationality." 13 Cl.
(continued...)

This issue was analyzed by the Court of Claims in considering whether the Bikini Atoll plaintiffs could continue their law suit. The court, however, distinguished the facts of the cases from that doctrine. The issue, the court indicated, was not whether naturalized citizens could bring claims from a forum that they had chosen for their convenience. Rather, the issue was whether the inhabitants of an area which was under differing forms of government could be adequately represented by the existing government. The court indicated that the question of whether the "continuous nationality" rule should be applied to an emerging state seeking to espouse claims arising before its creation was a novel and unexplored area in international law. Consequently, the court deferred a decision on this issue, deciding the case on other grounds.[106] Thus, if these cases are again pursued, it seems likely that this issue would be explored further.

Such an exploration might consider the genesis of the "continuous nationality" rule. The rule is considered to be an outgrowth of the broader international law rule that a state may not espouse a claim on behalf of someone who is not its national. The "continuous nationality" rule merely provides that this general rule must be satisfied both at the time of injury and continuously thereafter.[107] However, it is not clear that the doctrinal basis for this latter rule is strong as regards the instant case. First, the "continuous nationality rule" appears related to the traditional reluctance of nations to espouse claims of individuals with whom they have little or no connection. That rationale may not be strongly applicable in the instant case, as the majority of the injured parties are likely to have been citizens of RMI since that state's inception. Second, the doctrine appears to arise from various restrictive interpretations of bilateral treaties. For instance, where a treaty establishing a claims commission did not define when a person becomes a national, it was assumed that the parties intended for that term to be construed narrowly to exclude persons who were not nationals when an injury occurred. Here, however, RMI and the United States clearly intended the espousal specified in the Compact to extend to the plaintiffs.[108] Consequently, it is not clear how a court would apply the "continuous nationality" doctrine to an interpretation of the Compact.

The Court also considered the argument that limiting the jurisdiction of the court from considering the plaintiffs' case was in violation of the Constitution. Under this argument, a blanket withdrawal of access to a judicial forum deprives plaintiffs of all judicial remedies for violation of their constitutional rights under the Fifth

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[105] (...continued)
Ct. at 686.

[106] *Id.* (finding that pursuing these issues was premature until the claims procedures established under the Section 177 agreement were implemented and completed.)

[107] Matthew S. Duchesne, *The Continuous-Nationality-of-Claims Principle: Its Historical Development and Current Relevance to Investor-state Investment Disputes*, 36 Geo. Wash. Int'l L. Rev. 783, 788 (2004).

[108] It should noted, further, that the United States and European sometimes invoke the "Vattelian fiction" to defeat this rule, arguing that where an injury to an individual can also be construed as an injury to the state, then the state can espouse a claim to protect its own international rights. *Id.* at 791.

Amendment, which in itself gives rise to a taking of plaintiffs' causes of action in violation of the Fifth Amendment.[109] The United States responded, however, by noting that the Tribunal established by the Section 177 Agreement provided a "reasonable, certain and adequate provision for compensation"[110] of the taking.

The Court of Claims concluded that, in light of the Section 177 Agreement, it was premature to address the above arguments, and that the question of whether the alternative procedures provided by Congress were adequate would be dependent upon the amount and type of compensation. Thus, whether the settlement provided "adequate" compensation could not be determined at that time. Consequently, because the jurisdiction of the Court of Claims had been withdrawn by the Congress, the court dismissed the case.

Finally, it should be noted that if the plaintiffs from these cases file suit again, it is likely that the United States would argue that the case represented a political question, and should be resolved by the Executive Branch, not the courts.[111] The political question doctrine, first recognized in Marbury v. Madison,[112] stands for the tenet that certain political questions are by their nature committed to the political branches and to the exclusion of the judiciary. The application of this doctrine in this context, however, is unclear. It is true that the Supreme Court has made sweeping statements that all questions touching foreign relations are political questions.[113] However, the issue in the instant case does not relate directly to the United States' relationship to a foreign country, but rather with the relationship of the United States to persons previously under its stewardship. Further, the issue before the Court is not the legitimacy of the Compact with RMI, but is interpretation.[114] Consequently, the ultimate shape of the United States' political question argument in this situation is unclear.

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[109] *See* United States v. Klein, 80 U.S. 128 (13 Wall) (1871); Lynch v. United States, 292 U.S. 571 (1934); Battaglia v. General Motors Corp., 169 F.2d 254 (2d Cir. 1948), *cert. denied*, 335 U.S. 887 (1948). For further discussion of this issue, *see* CRS Report RL32171, *Limiting Court Jurisdiction Over Federal Constitutional Issues: "Court-Stripping,"* by Kenneth Thomas.

[110] Regional Rail Reorganization Cases, 419 U.S. 102, 124-25 (1974).

[111] Juda v. United States, 13 Cl. Ct. at 669.

[112] 5 U.S. (1 Cranch) 137, 164 (1803).

[113] Oetjen v. Central Leather Co., 246 U.S. 297, 302 (1918) ("The conduct of the foreign relations of our Government is committed by the Constitution to the Executive and Legislative — 'the political' — Departments of the Government, and the propriety of what may be done in the exercise of this political power is not subject to judicial inquiry or decision.") Id.

[114] *See* Baker v. Carr, 369 U.S. 186 , 211-212 (1962).

## Appendix A. List of Major Legislation Authorizing or Appropriating Compensation for Nuclear Testing, 1964-2004[115]

| Year | Legislation | Atoll | Purpose | Authorization[a] or Appropriation |
|---|---|---|---|---|
| 1964 | P.L. 88-485 | Rongelap | personal injury compensation | $950,000 |
| 1975 | P.L. 94-34 | Bikini | resettlement trust fund for people of Bikini Atoll | $3 million |
| 1976 | P.L. 94-367 | Enewetak | radiological cleanup | $20 million, plus military equipment and personnel |
| 1977 | P.L. 95-134 | Enewetak | rehabilitation and resettlement | $12.5 million |
| 1977 | P.L. 95-134 | Rongelap and Utrik | heirs or legatees of individuals who died as a result of a thermonuclear detonation | $100,000 |
| 1977 | P.L. 95-134 | Utrik | compensation for exposure to radioactive fallout | $1,000 per resident as of March 1, 1954 ($157,000 est.) |
| 1977 | P.L. 95-134 | Rongelap and Utrik | personal injury "compassion" compensation | $25,000 to each resident as of March 1, 1954 who suffered from a thyroid problem or radiation-related cancer ($1,083,000) |

[115] For some compensation programs listed in **Appendix A**, congressional authorizations may not have been fully funded; in other programs, spending remains unaccounted for. A sum of approximately $398 million is calculated by adding up the authorizations, appropriations, and estimations in the table. Funding for DOE radiological and health programs between 1954 and 2004 ($150 million) brings the total to $548 million. This figure represents a rough estimate of U.S. nuclear test compensation to the RMI. Other U.S. compensation not provided in this table include Department of the Interior-administered health care and USDA food programs prior to 1986 and $500,000 in cash and trust funds to the peoples of Bikini and Enewetak in 1956.

| Year | Legislation | Atoll | Purpose | Authorization[a] or Appropriation |
|---|---|---|---|---|
| 1977 | P.L. 95-348 | Bikini | appropriations for the rehabilitation and resettlement of Bikini Atoll and Kili Island | unspecified |
| 1978 | P.L. 95-348 | Bikini | supplement to trust fund | $3 million |
| 1979 | P.L. 96-126 | Bikini | ex gratia payment to the people of Bikini | $1.4 million |
| 1980 | P.L. 96-205 | Rongelap and Utrik | personal injury compensation | $25,000 to each individual who suffered radiation-related injury or harm |
| 1980 | P.L. 96-597 | Bikini and Enewetak | technical, agricultural, food, and transportation assistance for resettlement | unspecified |
| 1982 | P.L. 97-257 | Bikini | supplement to trust fund | $20 million |
| 1986 | Compact of Free Association; P.L. 99-239 | All atolls | nuclear claims, health care, medical surveillance and radiological monitoring, trust funds for the four atolls, food and agricultural programs | $150 million |
| 1986- | P.L. 99-239; P.L. 108-188 (2004-2023) | Enewetak | agricultural maintenance program | $1.1-1.3million per year ($21 million est., 1986-2004; $9.5 million est. , 1980-1985) |
| 1986- | P.L. 99-239; P.L. 108-447 | Four atolls | USDA food program | $610,000 per year ($11.6 million est., 1986-2004) |
| 1986 | P.L. 99-239 | Enewetak (Enjebi) | establish trust fund | $7.5 million |

| Year | Legislation | Atoll | Purpose | Authorization[a] or Appropriation |
|---|---|---|---|---|
| 1986 | P.L. 99-239 | Rongelap[b] | rehabilitation and resettlement | $13 million |
| 1988 | P.L. 99-239; P.L. 100-446 | Bikini | settlement of claims and supplement to trust fund | $90 million |
| 1991 | P.L. 102-154 | Rongelap | establishment of resettlement and rehabilitation trust fund | $2 million |
| 1996 | P.L. 104-134 | Rongelap[b] | rehabilitation and resettlement | $26.4 million |
| 2005-2007 | P.L. 108-188 | Rongelap[b] | rehabilitation and resettlement | $5.3 million |

**Sources**: *Agreement Between the Government of the United States and the Government of the Republic of the Marshall Islands for Implementation of Section 177 of the Compact of Free Association*, Appendix A; U.S. Department of State, *Report Evaluating the Request of the Government of the Republic of the Marshall Islands Presented to the Congress of the United States of America*, November 2004, Appendix B; *Nuclear Testing in the Marshall Islands: A Chronology of Events* [http://www.rmiembassyus.org/Nuclear%20Issues.htm#Chronology].

a. Some authorized amounts may not have been fully appropriated.
b. Part of a $45 million agreement between the United States and the people of Rongelap for purposes of resettlement, signed on September 19, 1996.

## Appendix B. Comparison of Radiation Compensation Amounts

| Compensable Disease | RECA Downwinders | RMI Nuclear Claims Tribunal |
|---|---|---|
| Leukemia (except chronic lymphocytic leukemia) | $50,000 | $125,000 |
| Cancer of the lung | $50,000 | $37,500 |
| Multiple myeloma | $50,000 | $125,000 |
| Lymphomas (except Hodgkin's disease) | $50,000 | $100,000 |
| Cancer of the thyroid | $50,000 | $75,000 (recurrent<br>$50,000 (non-recurrent) |
| Cancer of the breast | $50,000 | $100,000 (recurrent/mastectomy)<br>$75,000 (non-recurrent/lumpectomy) |
| Cancer of the esophagus | $50,000 | $125,000 |
| Cancer of the stomach | $50,000 | $125,000 |
| Cancer of the pharynx | $50,000 | $100,000 |
| Cancer of the small intestine | $50,000 | $125,000 |
| Cancer of the pancreas | $50,000 | $125,000 |
| Cancer of the bile ducts | $50,000 | $125,000 |
| Cancer of the gall bladder | $50,000 | $125,000 |
| Cancer of the salivary gland | $50,000 | $50,000 (malignant)<br>$37,500 (benign, surgery)<br>$12,500 (benign, no surgery) |
| Cancer of the urinary bladder | $50,000 | $75,000 |
| Cancer of the brain | $50,000 | $125,000 |
| Cancer of the colon | $50,000 | $75,000 |
| Cancer of the ovary | $50,000 | $125,000 |
| Cancer of the liver (except if cirrhosis or hepatitis B is indicated) | $50,000 | $125,000 |
| Cancer of the central nervous system | not covered | $125,000 |
| Cancer of the kidney | not covered | $75,000 |

| Compensable Disease | RECA Downwinders | RMI Nuclear Claims Tribunal |
|---|---|---|
| Cancer of the rectum | not covered | $75,000 |
| Cancer of the cecum | not covered | $75,000 |
| Cancer of the bone | not covered | $125,000 |
| Tumors of the parathyroid gland | not covered | $50,000 (malignant)<br>$37,500 (benign, surgery)<br>$12,500 (benign, no surgery) |
| Meningioma | not covered | $100,000 |
| Non-malignant thyroid nodular disease | not covered | $50,000 (total thyroidectomy)<br>$37,500 (partial thyroidectomy)<br>$12,500 (no thyroidectomy) |
| Unexplained hypothyroidism | not covered | $37,500 |
| Severe growth retardation due to thyroid damage | not covered | $100,000 |
| Unexplained bone marrow failure | not covered | $125,000 |
| Radiation sickness diagnosed between June 30, 1946, and Aug. 18, 1958 | not covered | $12,500 |
| Beta burns diagnosed between June 30, 1946, and Aug. 18, 1958 | not covered | $12,500 |
| Severe mental retardation (provided born between May and Sept. 1954, and mother on Rongelap or Utirik any time in Mar. 1954) | not covered | $100,000 |
| Unexplained hyperparathryoidism | not covered | $12,500 |
| Non-melanoma skin cancer in individuals diagnosed with beta burns (see above) | not covered | $37,500 |

**Sources**: Radiation Exposure Compensation Program (RECA), Department of Justice [http://www.usdoj.gov/civil/torts/const/reca/]; Nuclear Claims Tribunal [http://www.nuclearclaimstribunal.com/].

## Appendix C. Payments from Earnings and Principal of Nuclear Claims Fund (1986-2004) and Current Status

| | Nuclear Claims Tribunal | Bikini Trust Fund | Enewetak Trust Fund | Rongelap Trust Fund | Utrik Trust Fund | Other |
|---|---|---|---|---|---|---|
| Payments | $71.7 million paid out of $87.4 million awarded ($45.75 million from Claims Fund disbursements + $25.9 million from Fund corpus, 2001-2004); $3.9 million in partial payment of NCT propery awards to the peoples of Bikini and Enewetak. | $75 million disbursed in quarterly amounts of $1.25 million for fifteen years (1986-2001) of which half placed in trust | $48.75 million disbursed in quarterly amounts of $812,500 for fifteen years (1986-2001) of which half placed in trust | $37.5 million disbursed in quarterly amounts of $625,000 for fifteen years (1986-2001) of which half placed in trust | $22.5 million disbursed in quarterly amounts of 375,000 for fifteen years (1986-2001) of which half placed in trust | $34.5 million for health care system and programs (1986-2003); $3 million for medical surveillance and radiological monitoring (1986-1988), and other programs; $7.5 million for NCT operating costs; $10 million for other administrative costs and technical support. |
| Status | remainder of $15.7 million requested in Changed Circumstances Petition | trust fund worth $55 million in 2004. | trust fund worth $31 million in 2004. | trust fund worth $30 million in 2004. | trust fund worth $17 million in 2004. | health care and radiological monitoring programs continue on discretionary funding basis |
| Total Paid from Nuclear Claims Fund (2005): $314 million<br>Remainder of Fund (2005): $4 million<br>Outstanding Personal Injury Awards: $15.7 million as requested in Changed Circumstances Petition | | | | | | |

**Sources**: Allen P. Stayman, "The Resettlement, Relocation, and Radiological Rehabilitation of the Bikini, Enewetak, Rongelap, and Utrik Atolls," Testimony before the House Committee on Resources, May 11, 1999; *Agreement Between the Government of the United States and the Government of the Republic of the Marshall Islands for Implementation of Section 177 of the Compact of Free Association*; Nuclear Claims Tribunal.

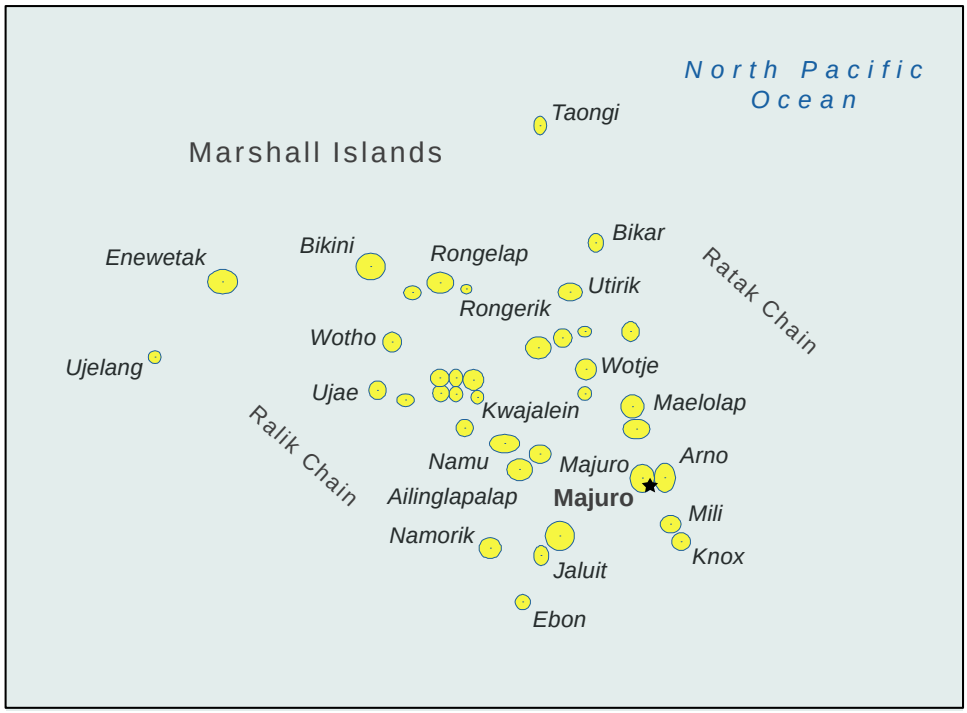
## Appendix D. Marshall Islands Time Line

### U.S. Nuclear Testing and Remediation on the Marshall Islands

- 1946: Operation Crossroads: Prior to the test, 167 Bikinians are evacuated to Rongerik Atoll, where they face severe food shortages.
- 1951: Operation Greenhouse begins at Enewetak. 145 Local inhabitants are moved to Ujelang Atoll prior to the test.
- 1952: First detonation of a hydrogen device (Operation Ivy) over Enewetak.
- 1954: Bravo test commences. Over 250 Marshall Islanders are exposed to radioactive ash on Rongelap and Utrik atolls for 2-3 days. They are then relocated, where they face food shortages.
- 1955: Utrik people return to their atoll.
- 1956: U.S. government gives Enewetak $25,000 in cash and a $150,000 trust fund; Bikini receives $25,000 in cash and a $300,000 trust fund.
- 1957: People of Rongelap return to their atoll.
- 1958: Nuclear Testing terminated.
- 1968: Bikini is declared safe for habitation — 139 Bikinians return.
- 1978: Bikini residents are re-evacuated to Kili Island after new studies reveal unsafe levels of radiation on their atoll.
- 1980: Enewetak people return to their native atoll following a $218 million cleanup effort.
- 1981: The native inhabitants of Bikini sue the United States for $450 million.
- 1985: The people of Rongelap are re-evacuated after new studies reveal unsafe levels of radiation.
- 1986: The Compact of Free Association is enacted.
- 1990: Enewetak islanders file a lawsuit against the United States.
- 1991: The Nuclear Claims Tribunal grants its first compensation awards.
- 1995: Findings of a Marshall Islands government-commissioned report, the *Nationwide Radiological Study* (Simon and Graham), are rejected by the RMI Parliament.
- 2000: RMI government submits Changed Circumstances Petition.
- 2003: U.S. Congress approves Compact amendments.
- 2004: Resettlement of Rongelap begins.

**Sources**: RMI Embassy, *Nuclear Testing on the Marshall Islands: A Chronology of Events* (August 1996); Catherine Page, "Marshall Islands Still Burdened with Legacy of American Nuclear Testing and Radioactive Poisoning," *The Citizen*, February 7, 2000.

# Appendix E. Map of Marshall Islands




**Source:** Magellan Geographix. Based on information provided by the U.S. Department of State. Adapted by CRS. (K.Yancey 3/17/05)