

LOOKING BACK

No Promised Land: The Shared Legacy of the Castle Bravo Nuclear Test

This year marks the 60th anniversary of the Castle Bravo nuclear detonation in the Marshall Islands. The U.S. military conducted 67 nuclear tests in the Pacific Proving Grounds from 1946 to 1958. The Castle Bravo test, conducted on March 1, 1954, at Bikini Atoll, was 1,000 times the force of the Hiroshima bomb.

The explosion sent irradiated coral dust throughout the atolls. Neighboring atoll populations, who were neither informed of the tests nor relocated prior to the detonation, today continue to experience health issues, cultural upheaval, and physical dislocation due to the environmental degradation produced by the test and the effects of climate change. The Bravo detonation remains the largest nuclear test ever conducted by the United States.¹ Although the United States tested an additional 55 nuclear weapons in the Marshall Islands, Castle Bravo is the most notorious due to its impact, primarily on the people of the Marshall Islands.

The Marshall Islands, two chains of 29 low-lying coral atolls situated north of the equator between Hawaii and Australia, were occupied by the U.S. military during World War II and in 1947 became a UN trust territory administered by the United States. Prior to the U.S. control, the islands, whose first inhabitants likely arrived on the atolls some 4,000 years ago, were claimed by Spain in 1494 and administered by Germany from 1885 until the outbreak of World War I. At that time, Japan began seizing German possessions until it took formal control under the League of Nations charter in 1920.

Initially, many Marshallese welcomed

the new governance as the Japanese worked to build up an infrastructure, including schools, and to increase economic trade. With the outbreak of World War II, the Japanese military took over administration and began fortifying several of the atolls. When the fighting in the Pacific intensified in 1942, the Marshallese suffered as the Japanese military began to brutalize the population as food sources became scarce.² In February 1944, U.S. Marine and Army forces invaded Japanese strongholds on Kwajalein and Enewetak atolls and turned both into U.S. military bases, the former being the Army's largest air base in Micronesia.³ After months of intense fighting in the Pacific theater, the United States dropped atomic bombs on the Japanese industrial cities of Hiroshima and Nagasaki in August 1945.

Attracted by its remote location, sparse population, and nearby U.S. military bases, the United States made plans to test its most powerful weapons in the Marshall Islands. U.S. Navy Commodore Ben Wyatt, with cameras rolling, met with Bikini Atoll inhabitants and their leader to "ask" for use of their atoll "for the good of mankind." Wyatt came to the island on a Sunday after church services and, at one point, likened the Bikinians

to the children of Israel who had been saved by their enemies and led to the Promised Land. With the leader's response that "everything is in God's hands," the cameras cut, and the military began preparations to relocate the 167 Bikinian people to another island.⁴

Realistically, the Bikinians had no choice. A month prior to the filmed exchange, U.S. President Harry Truman had already approved Bikini Atoll as the test site for Operation Crossroads, a series of two tests in 1946 designed to study the effects of nuclear weapons. With no understanding of atomic weapons, radiation, or the likelihood of permanent displacement, the Bikinians acquiesced and were relocated to Rongerik Atoll, an uninhabited island 125 miles to the east where they lacked sustainable food and potable water supplies.

The two atomic tests were Able, an airdrop test conducted on June 30, and Baker, an underwater detonation that took place on July 24. The Navy placed 95 vessels, including aircraft carriers and destroyers, in Bikini Atoll's lagoon, and hundreds of animals were strapped to the decks to monitor the blast's effects. Thousands of U.S. soldiers were positioned on naval ships outside the blast zone and then brought in to survey the damage, retrieve the irradiated animals, and decontaminate the vessels that were exposed to high levels of radiation.⁵

The U.S. military took pains to impress on the international community the point that the tests were of a scientific nature and not saber rattling. A large contingent of international observers and journalists was on hand to witness the tests, and thousands of cameras captured the spectacular events. The tests overshadowed the U.S. military's movement of Marshallese populations

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to different islands to prevent their contamination by radiation. These islands rarely held the food or water supplies necessary to sustain their temporary populations.

In 1947, a year after the two Crossroads detonations, the United Nations awarded trusteeship of the Marshall Islands to the United States. Part of the U.S. charge was to “protect the inhabitants against the loss of their lands and resources” and to “protect the health of the inhabitants.”⁶ Once operations in the Pacific Proving Grounds switched from military to U.S. civilian control in 1947 under the newly formed Atomic Energy Commission (AEC), a new cloud of secrecy shrouded future tests. The AEC ramped up testing to create increasingly powerful weapons. Its next three series of tests—Operation Sandstone in 1948, Operation Greenhouse in 1951, and Operation Ivy in 1952—detonated fission and thermonuclear weapons over Enewetak Atoll. The last test in the Ivy series, Mike, was the first hydrogen bomb; it had a yield of 10.4-12.0 megatons.

Impact of the Bravo Test

The Castle test series, begun in 1954, was intended to test lithium deuteride as a thermonuclear fusion fuel. Islanders had been relocated prior to early tests, but the Bravo test was conducted secretly with no relocations beforehand. Winds that were noted as favorable by weather forecasters three days prior to the blast were deemed unfavorable six hours before the test. Still, Major General Percy Clarkson, the head of the military team responsible for carrying out the testing, ordered the detonation to proceed as planned despite the likelihood that winds would carry the fallout over inhabited atolls.

At 15 megatons, the Bravo shot created a mushroom cloud that rose as high as 130,000 feet and spread over an area more than 25 miles in diameter in less than 10 minutes.⁷ Detonated over Bikini Atoll, the explosion vaporized three islands. The nuclear fallout, made up of crushed coral, water, and radioactive particles, rained down over inhabited atolls. Witnesses described watching the sun rise in the west the morning of the detonation and were fascinated by the red and orange colors that lit up the sky. They then described their terror as the shock wave hit. Hours later, the Marshallese described



The 15-megaton Castle Bravo nuclear test in the Marshall Islands on March 1, 1954, is the largest nuclear test ever conducted by the United States.

U.S. Department of Energy

the falling “snow” and how unsuspecting children played in the fallout and women rubbed it in their hair.⁸ The residents of Rongelap and Ailinginae atolls bore the brunt of the radioactive fallout.

According to Rongelapese magistrate John Anjain, two Americans arrived on the island by plane and hastily inspected the damage to the atoll on the afternoon of March 2, the day after the blast, but left without warning anyone of the danger posed by the radioactivity.⁹ The U.S. military arrived on the morning of March 3 to evacuate the residents, who were already suffering from radiation poisoning.

The U.S. military evacuated other populations on Rongerik and Ailinginae atolls. Weathermen stationed on Rongerik Atoll were instructed on March 2 to stay inside their metal-lined bunkers until they could be evacuated later that day. Marshallese residents received no such warnings. The Marshallese inhabitants of Rongerik Atoll were not evacuated until March 4.

The Bravo event itself might have remained unknown to the U.S. public at the time if it were not for a Japanese fishing vessel, the *Daigo Fukuryū Maru* (*Lucky Dragon*) and its 23 crewmen who were caught inside the contamination zone. Panic spread throughout Japan that the contaminated tuna brought aboard the vessel had entered the market.¹⁰

A report submitted by the AEC to the U.S. representative on the UN Trusteeship Council on June 9, 1954, downplayed the impact of the Bravo test by emphasizing

that there would be no long-term effects on the native Marshallese from Bravo contamination, based on medical estimates. The report said the evacuated Rongelapese appeared happy and content and were provided with better housing on Majuro Atoll than on their home island.¹¹ The report estimated that the displaced population would be returned to Rongelap Atoll within six months to a year. In reality, the Rongelapese in particular had been exposed to near-lethal doses of radiation. A calculation of the radiation intake of the population shows that Rongelapese adults likely were exposed to internal doses of ionizing radiation of 60-300 rem. Doses at that level typically cause many kinds of physiological damage. According to the study, five to 10 rem can alter blood chemistry and cause genetic damage, while 400 rem would likely kill 50 percent of the exposed population.¹²

The Rongelapese quickly became test subjects of a U.S. government-sponsored program, Project 4.1, entitled “The Study of Response of Human Beings Exposed to Significant Beta and Gamma Radiation Due to Fallout from High Yield Weapons.” The team conducting the study did not ask the Marshallese for their consent or even explain to them that a study was being conducted, which caused even more confusion as Marshallese were shuttled between the islands and testing facilities in the United States. The Marshallese were told they were being treated for their various illnesses, but rarely was a translator present to explain what tests were being conducted or for what purpose.

Marshallese were given pills to take with no accompanying explanation as to why they were supposed to take them.

The impact of radiation was evidenced by Marshallese who were returned to their atolls as well as atoll populations that the AEC considered to be unaffected by the Bravo test. Exposed women gave birth

States had encouraged resettlement years earlier.

As litigation, mostly instigated by Bikinians, continued in the U.S. court system, the majority of the Marshallese people voted to establish a new political relationship with the United States. The Republic of the Marshall Islands was

movement of Marshallese between atolls or the lingering effects of radiation. This is an obvious point of consternation of the many Marshallese who live on atolls other than the designated four and believe their atolls were similarly affected by U.S. nuclear testing but go unrecognized.

The “changed circumstances” provision

Hours [after the Bravo test], the Marshallese described the falling “snow” and how unsuspecting children played in the fallout and women rubbed it in their hair.

to severely deformed babies, some with abnormally large heads and translucent skin, none of whom survived more than a number of days. Not knowing the cause of their illnesses, the Marshallese sickened by radiation were often ostracized and suffered psychological trauma.

As the U.S. nuclear testing continued in the Marshall Islands through 1958, displaced Marshallese, particularly those from Bikini and Enewetak atolls, suffered from malnutrition and sometimes starvation as the islands on which they were placed could not sustain the population. In 1957 the AEC returned the Rongelapese to their atoll, where they remained for nearly 30 years despite pleas to the United States to remove them because of the prevalence of disease. In the decades following the testing, the Marshallese suffered high rates of growth abnormalities in children and other birth defects. Thyroid tumors, especially among Rongelapese women, have resulted in numerous surgeries, which affected their abilities to speak and sing, the latter of which serves as an important aspect of Marshallese culture.¹³

Political and Legal Steps

After the Bravo test, the U.S. government provided cash payments and established trust funds for the Enewetakese, Bikinians, and Rongelapese for radiation exposure. In the 1970s, the United States began cleaning up Enewetak Atoll in an attempt to make it habitable. Studies by the U.S. government deemed Bikini Atoll too radioactive to inhabit although the United

established in 1979. In 1986 the Compact of Free Association between the republic and the United States was signed into law, ending the trusteeship arrangement and ushering in a new period of political independence. The compact allows Marshallese citizens to enter, work in, and go to school in the United States and gives the United States the responsibility for the islands’ defense. An affiliated agreement gives the United States full and continued control over military facilities on Kwajalein Atoll to conduct military maneuvers. One section of the compact provides for continued medical care of the remaining 176 Marshallese directly affected by the Bravo detonation.

Section 177 of the compact provided for a separate agreement to deal with settlement issues. The agreement called for the establishment of a \$150 million trust fund set up by the U.S. government in exchange for the dismissal of all pending court cases and a pledge not to pursue any future litigation. It also established the National Claims Tribunal to hear Marshallese cases of personal injury and damages to or loss of property. Due to the number of claims, the \$45 million provided by the United States to the tribunal has mostly been spent and is considered by the Marshallese to be insufficient.

The U.S. government narrowly defines the affected atolls as Bikini, Enewetak, Utrik, and Rongelap and affected individuals as those who were on the four atolls during the testing period, failing to take into account the frequent

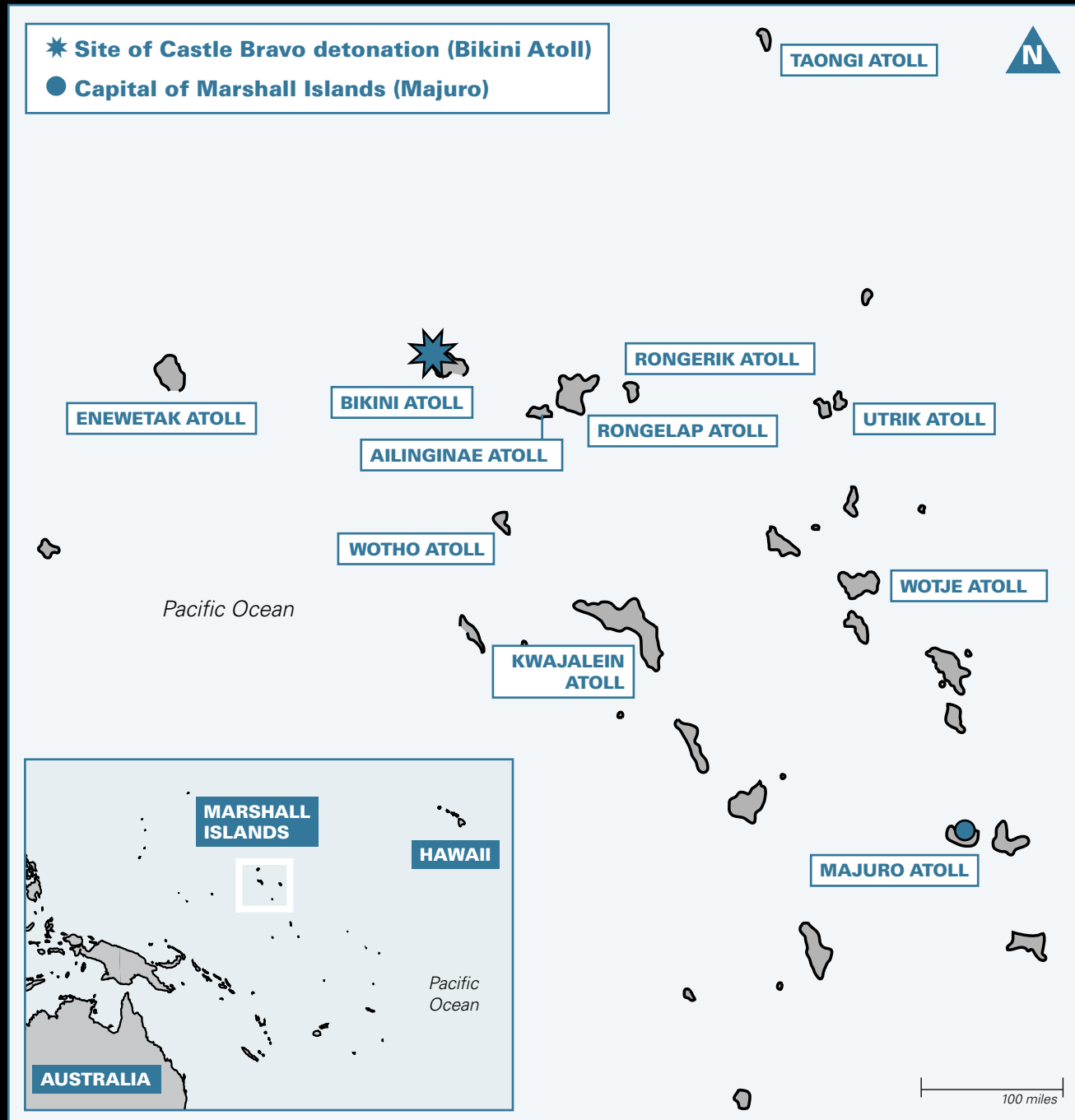
in the compact allows for the Marshall Islands to petition the U.S. Congress for additional financial assistance if they can provide proof there were additional damages to property and injuries from the testing program unknown during the time of the compact negotiations and in excess of the original \$150 million provided. Years later, the Marshallese believed they had their evidence.¹⁴

During the administration of President Bill Clinton, congressional pressure to declassify AEC documents related to domestic nuclear testing increased. Prompted by a series of newspaper articles alleging that U.S. citizens had been injected with plutonium without their consent, Secretary of Energy Hazel O’Leary declassified thousands of documents, many of which dealt with testing in the Pacific Proving Grounds, under the “Openness Initiative.” In 1994, Rep. George Miller (D-Calif.), chairman of the House Committee on Natural Resources, held a hearing to review the information contained in the AEC documents.

One of the documents that elicited an outcry and potentially provided the Marshallese with official evidence of damage and injury was a 1973 U.S. government report stating that fallout from the Bravo test possibly affected 13 atolls, including Ailinginae, Kwajalein, Wotho and Wotje and that subsequent explosions may have hit some of the same areas. Miller charged the United States with having “deliberately kept that information from the Marshallese,” which

Figure 1: The Castle Bravo Test

The Castle Bravo nuclear test conducted by the United States on March 1, 1954, had a profound impact throughout the Marshall Islands. Marshallese efforts to obtain acknowledgment of and redress for the effects of this test and others continue to the present day.



Source: Worldatlas.com, Marshallese embassy to the United States

he argued, “clearly constitutes a cover-up.”¹⁵

Based on this new information, in 2000 the Marshall Islands formally submitted a petition invoking changed circumstances, as allowed by the compact. Following the September 11 attacks, the U.S. government took on a more defensive posture with

regard to government openness. Many of the documents that were not already reclassified in the backlash to O’Leary’s massive declassification project were taken off the shelves at the National Archives and Records Administration.¹⁶ In 2005 the Bush administration formally denied the petition submitted by the Marshall Islands

as lacking adequate proof.

More recently, Marshallese officials have sought to make the United Nations take responsibility for its part in allowing the United States to conduct nuclear testing while serving as a UN trustee and assist in pressuring the United States to provide adequate compensation. In

September 2012, Calin Georgescu, the UN special rapporteur on human rights and toxic waste, encouraged the United States to fulfill its responsibilities to the people of the Marshall Islands affected by the nuclear testing. He said the U.S. government should provide “full funding for the Nuclear Claims Tribunal to award adequate compensation for past and future claims” and health care to those residing in the United States.¹⁷

Today, nuclear issues remain at the center of the complex geopolitical relationship between the United States and the Marshall Islands. The Marshallese on the islands suffer from health issues, including high cancer rates and the highest rate of diabetes in the world, and high unemployment.¹⁸

The Marshallese who have relocated to the United States continue to struggle as well. Due to economic pressures to find work and their lack of proficiency with English, few within the Marshallese community pursue higher education. Like the Marshallese that have remained in the islands, the U.S. community suffers from high rates of diabetes and cancer, and it lacks adequate access to medical resources.

Because of limited information about the nuclear tests, few within the United States are aware of the challenges facing this diasporic community. The Marshallese themselves are conflicted. They appreciate the opportunities provided to them by the United States, but cannot understand how their closest ally can deny the obvious effects of nuclear testing on their population in areas such as health issues and loss of land, which contributes to a loss of cultural identity. While reflecting in 1978 on Wyatt’s religious appeal to the Bikinians to allow the United States the use of their island for testing, Bikinian representative Tomaki Juda said, “[W]e are sadly more akin to the Children of Israel when they left Egypt and wandered through the desert for 40 years. We left Bikini and have wandered through the ocean for 32 years and we will never return to our Promised Land.”¹⁹

ENDNOTES

1. Citing a February 23, 1954, memorandum contained in U.S. documents hand-delivered to the Marshall Islands in 2013, *Marshall Islands Journal* editor Giff Johnson argues that U.S. officials had planned for a 12- to 20-megaton

blast and that claims that the 15-megaton blast exceeded expectations therefore were false. Giff Johnson, *Don’t Ever Whisper; Darlene Keju: Pacific Health Pioneer, Champion for Nuclear Survivors*, (CreateSpace Independent Publishing Platform, 2013), pp. 370-371.

2. Holly Barker, *Bravo for the Marshallese: Regaining Control in a Post-Nuclear, Post-Colonial World*, 2nd ed. (Belmont: Wadsworth, 2013), p. 18.

3. Jonathan M. Weisgall, *Operation Crossroads: The Atomic Tests at Bikini Atoll* (Annapolis: Naval Institute Press, 1994), pp. 42-43.

4. The U.S. government invited journalists and Hollywood film crews to Bikini Atoll to record the exchange. See Barker, *Bravo for the Marshallese*, p. 20. Newsreel footage and the various takes may be viewed in the documentary films *The Atomic Café*, directed by Pierce Rafferty, Jayne Loader, and Kevin Rafferty from 1982, and *Radio Bikini*, directed by Robert Stone from 1987. For information and photographs related to the nuclear testing there, see <http://www.bikiniatoll.com/>.

5. Barker, *Bravo for the Marshallese*, pp. 20-21.

6. Legal Information System of the Federated States of Micronesia, “Trusteeship Agreement for the Former Japanese Mandated Islands,” n.d., art. 6, nos. 2 and 3, <http://www.fsmlaw.org/miscdocs/trustshipagree.htm>. The agreement was approved by the UN Security Council on April 2, 1947, and ratified by the U.S. Congress on July 18, 1947.

7. Barker, *Bravo for the Marshallese*, p. 23.

8. Jessica A. Schwartz, “A ‘Voice to Sing’: Rongelapese Musical Activism and the Production of Nuclear Knowledge,” *Music and Politics*, Vol. 6, No. 1 (Winter 2012).

9. Barbara Rose Johnston and Holly Barker, *The Rongelap Report: Consequential Damages of Nuclear War* (Walnut Creek, CA: Left Coast Press, 2008), p. 12.

10. Ten days after the March 1 blast, the U.S. Atomic Energy Commission reported that 28 Americans and 236 natives of the Marshall Islands “were unexpectedly exposed to some radiation” but had not suffered burns and were in good health. “Fishermen Burned in Bikini Test Blast,” Associated Press, March 16, 1954. Press reports of the sailors’ illnesses and the irradiated fish generated pressure on the U.S. government to pay \$2 million in damages to the Japanese government in 1955.

11. “The General Manager, Atomic Energy

Commission (Nichols) to the Assistant Secretary of State for United Nations Affairs (Key),” June 9, 1954, *Foreign Relations of the United States, 1952-1954, United Nations Affairs, Vol. III* (Washington, DC: Government Printing Office, 1983), pp. 1491-1494.

12. Johnson and Barker, *Rongelap Report*, p. 97 (citing Hans Behling, John Mauro, and Kathleen Behling, “Reassessment of Acute Radiation Doses Associated With BRAVO Fallout: Report to the RMI Nuclear Claims Tribunal” [McLean, VA: S. Cohen and Associates, 2000]).

13. Barker, *Bravo for the Marshallese*, pp. 45-46; Schwartz, “A ‘Voice to Sing.’”

14. For a detailed examination of the Compact of Free Association, the section 177 agreement, and the “changed circumstances” petition submitted by the Marshall Islands to Congress in 2000, see Barker, *Bravo for the Marshallese*, pp. 34-39, 111-116. For the original compact, see <http://www.fsmlaw.org/compact/>. For the 2003 amended version, see <http://www.gpo.gov/fdsys/pkg/PLAW-108publ188/html/PLAW-108publ188.htm>.

15. Gary Lee, “Postwar Pacific Fallout Wider Than Thought; New Data Show Radiation Spread Beyond Limited Area,” *The Washington Post*, February 24, 1994.

16. Scott Shane, “U.S. Reclassifies Many Documents in Secret Review,” *The New York Times*, February 21, 2006; Scott Shane, “National Archives Pact Let CIA Withdraw Public Documents,” *The New York Times*, April 18, 2006.

17. UN General Assembly, A/HRC/21/48/Add.1, September 3, 2012.

18. Steven Simon et al., “Radiation Doses and Cancer Risks in the Marshall Islands Associated With Exposure to Radioactive Fallout From Bikini and Enewetak Nuclear Weapons Tests: Summary,” *Health Physics*, Vol. 99, No. 2 (August 2010): 105-123.

19. Juda was speaking to members of a House Appropriations subcommittee during a hearing to discuss the U.S. government’s recent findings that radiation levels were much higher on Bikini Atoll than it had previously claimed. Bikinians living on Kili Island had been asking the U.S. government to relocate their kinsmen for years due to the unsafe living conditions there. Walter Pincus, “Bikinians Must Quit Island for at Least 30 Years, Hill Told,” *The Washington Post*, May 23, 1978.