

STATEMENT OF JONATHAN M. WEISGALL
LEGAL COUNSEL TO THE PEOPLE OF BIKINI
BEFORE THE HOUSE NATURAL RESOURCES COMMITTEE
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Mr. Chairman and members of the Committee:

My name is Jonathan Weisgall. I have served as legal counsel for the people of Bikini since 1975.

I. Overview

Let me begin with a thumbnail sketch of the history, numbers and statistics: First, consider this statistic. From July 16, 1945 until September 23, 1992, the United States conducted 1,051 nuclear tests. Put another way, from July 16, 1945 until September 23, 1992, the United States conducted one nuclear test every 16.4 days. Sixty-six of these tests were conducted in the Marshall Islands, 23 at Bikini Atoll and 43 at Enewetak. I want to talk to you today about two of these tests: the 1946 Baker shot at Bikini, which was part of Operation Crossroads, and the 1954 Bravo shot, which was part of Operation Castle.

In a little over three weeks in 1945 -- at Alamogordo in the New Mexico desert and at Hiroshima and Nagasaki -- the world entered the atomic age. Seven months later, the U.S. Navy moved the 167 residents of Bikini off their atoll, and in July 1946 it exploded the world's fourth and fifth atomic bombs in Bikini lagoon. Operation Crossroads, as these tests were called, consisted of two shots -- an air-drop code-named Able and an underwater shot -- the world's first -- code-named Baker.

Bikini would not be used for nuclear testing for eight years, until 1954, when it was the site of five of the six hydrogen bomb shots in Operation Castle. Next Tuesday, March 1, will mark the 40th anniversary of the first shot in Operation Castle, the Bravo shot, the largest and most destructive nuclear test in U.S. history.

The stories of Baker and Bravo are linked by four major themes. The first two are the ignorance and arrogance that marked the U.S. nuclear testing program. Added to this was a third theme -- secrecy -- that served only to feed the arrogance and excuse the

ignorance. Mixed into this recipe was the fourth theme -- an insidious new weapon of terror called radioactive fallout -- a weapon of biological extinction, designed more for genocide than the destruction of buildings or military targets. Hiroshima and Nagasaki showed that the instant blast and heat of an atomic bomb can kill tens of thousands of people in a matter of seconds. The story of Baker and Bravo was that the killing power of lingering radioactive fallout far surpasses the instant sledgehammer effect of the bomb's blast.

In light of the Clinton Administration's new policy of openness concerning archival documents related to radiation testing, as exemplified by Energy Secretary O'Leary's bold and courageous stand, the time has come to reexamine the U.S. nuclear testing program in the Marshall Islands, its health impacts on U.S. military personnel and Marshallese citizens, and the relationship between these new facts and the 1985 Compact of Free Association between the United States and the Marshall Islands. I might add that Congressional committees have previously examined the impact of U.S. nuclear testing on both U.S. veterans and the Marshallese, but I believe that today marks the first time ever, 40 years after Bravo and nearly 48 after Baker, that Congress is asking what went wrong in these tests and why.

II. Compact Section 177 Agreement and Declassification of Documents

As I review this history, please keep in mind the Compact of Free Association Act of 1985, P.L. No. 99-239 (Jan. 14, 1986), which contains the Compact Section 177 Agreement. Article IX of that Agreement, entitled "Changed Circumstances," provides that if personal injuries or property damage in the Marshall Islands are later discovered and could not "reasonably have been identified as of the effective date of [the] Agreement," and if those "injuries render the provisions of [the] Agreement manifestly inadequate," the Marshall Islands government can ask the U.S. government to "provide for such injuries by submitting such a request" to Congress.

Having provided a remedy for the Marshallese to come back to Congress in case of changed circumstances, the U.S. government has continued to keep documents from the testing program classified, thus making it impossible to determine the extent of injuries and damages during the 1940s and 1950s. The Compact negotiations

were largely one-sided. Only the U.S. government knew the full details of the 66 nuclear tests it conducted in the Marshall Islands and the damage and destruction they caused. Despite requests from myself and others, in litigation and negotiations, thousands of documents remained classified and were never produced.

I recently looked back at my testimony in this very hearing room ten years ago on the upcoming Compact of Free Association:

The U.S. government has sought in the Section 177 agreement to put a price tag on its nuclear legacy in the Pacific and close the books on this sorry bit of history. If Congress is to pass judgment on the agreement, it seems only fair that it should have before it all the pertinent facts on the testing program.¹

I could submit that very statement today. The situation is exactly the same today as it was 10 years ago and 40 years ago; the United States still has most of the information. Some documents have been declassified over the last decade, but many remain inaccessible. This is a classic Catch-22. The United States agreed to a remedy called "Changed Circumstances," but it continues to block access to archival documents, thus making it harder to prove that "Changed Circumstances" may have occurred. Here's a remedy, said that United States, but we will set up every obstacle we can to make sure you can't exercise it.

My historical overview today is not intended as an indictment of anyone in this room. These events did not occur during the watch of anyone here; indeed, some of us weren't even born. But that fact is all the more reason why the U.S. government must declassify all documents related to these tests. We must all be dealing with the same set of facts. There is no longer any reason to hide information on the nuclear testing program. Some of this information is nearly 50 years old, and the national security imperatives that necessitated classification in the 1940s and 1950s no longer exist.

¹Compact of Free Association - Part II, Hearings Before the House Interior and Insular Affairs Subcommittee on Public Lands and National Parks 180 (98th Cong., 2d Sess., May 8, 1984).

Following the settlement of the Bikinians' last lawsuit against the United States, I continued to file Freedom of Information Act requests for documents on the testing program and track down new documents as they were declassified and placed in public files. This was for a book I was writing entitled Operation Crossroads: The Atomic Tests at Bikini Atoll, which will be published next week by the Naval Institute Press.

The information I am about to tell you comes from that research -- from documents I have obtained since the 177 Agreement was signed. Nothing of what I am about to tell you comes from material released by the Department of Energy last December or since then. Indeed, the Department -- and the White House's Human Radiation Inter-agency Working Group Task Force formed late last year -- take the position that issues raised by the U.S. nuclear testing program are different from the issues raised by radiation experiments on human subjects.

I submit that this is not the case. There is a fine line, at best, between, on the one hand, a patient injected with radioactive isotopes, and, on the other hand, a Marshallese resident of Rongelap sprinkled with fallout from Bravo or a Navy diver who entered Bikini's water two hours after the Baker shot. All three people end up with radiation-related diseases. All three are studied by doctors, and all three become guinea pigs in one form or another. Indeed, the Baker and Bravo examples may well be more the compelling cases for Secretary O'Leary's offer of compensation. In those cases there was no information given to the military personnel or the Marshallese and there was certainly no informed consent. These people -- the veterans and the Marshallese -- deserve our government's fullest attention.

III. Operation Crossroads

I will begin with Operation Crossroads, first looking at the fate of the tens of thousands of sailors and then the U.S. government's treatment of the Bikinians.

A. Baker

The Baker test, on July 25, 1946, was both a great technical success for the Navy and a near-disaster for many of the 40,000 sailors who were overexposed to radioactivity from the blast. In one

second, an underwater bomb pushed a one-mile-wide dome of water into the sky. It looked like Niagara Falls in reverse. Then, a full 10 seconds later, the water column collapsed back into the lagoon, creating enormous rolling waves of spray, mist and air that crept over the target fleet and swallowed the ships from view. This unexpected radioactive cloud bank, later called a base surge, was not predicted by any of the scientists, and it was about to become America's Chernobyl.²

Billowing outward, the base surge spread more than three miles across and 1,800 feet high, engulfing all the target ships within minutes and leaving what Crossroads's technical director called a "kiss of death" on the ships.³ The base surge "heavily contaminated" all but 9 of the 95 target ships, wrote the Navy, and "its radioactive mist settled on the decks, moistened every bit of exposed metal, wood and canvas."⁴ The blast, which sank the 26,000-ton battleship Arkansas in a matter of seconds, unleashed the greatest waves ever known to humanity, one of which lifted the huge aircraft carrier Saratoga 43 feet.⁵ It also unleashed the greatest amount of radioactivity ever known up to that time.

1. Warnings from Los Alamos and Stafford Warren

At first, an underwater atomic explosion had seemed too reckless. Scientists from Los Alamos National Laboratory warned the Navy in December 1945 that an "underwater test against naval

²William A. Shurcliff, Technical Report of Operation Crossroads (1946), p. 28.3 (XRD-208, NTIS Document No. AD 367496.); Commander, JTF-1, Operational Report on Atomic Bomb Tests Able and Baker (Operation Crossroads) (1946), p. VI-D-45 (XRD-206, NTIS Document No. AD 473986).

³Ralph Sawyer, Report of Technical Director, Operation Crossroads (1946), p. 7. (extracted version prepared by Defense Nuclear Agency as XRD-210).

⁴J. J. Fee, Operation Crossroads: Radiological Decontamination Report of Target and Non-Target Vessels (1946), Vol. I, p. 14 (Technical Report XRD-185-87, NTIS Document No. AD 473 906); William A. Shurcliff, Bombs At Bikini: The Official Report of Operation Crossroads (1947), p. 159.

⁵Director of Ship Material, JTF-1, Bureau of Ships Group, Technical Inspection Report, USS Saratoga, p. 14, Defense Atomic Support Agency Records; Shurcliff, Technical Report, pp. 6.12, 9.14, 21.5, 28.5; Berkhouse, L. et al., Operation Crossroads - 1946 (1984), pp. 101, 107 (DNA Report No. 6032F).

vessels would contain so many hazards that it should be ruled out at this time."⁶ If the muffling effect of the water were to prevent the radioactive material from rising high enough into the atmosphere, there would be trouble. "A rise of only 10,000 feet . . . would present the greatest hazard," one study concluded, "because most of the contamination would fall on the target ships or back into the lagoon," and another report predicted that the water column would rise only 5,000 to 8,000 feet.⁷ "The water near a recent surface explosion will be a witch's brew," warned Los Alamos. "There will probably be enough plutonium near the surface to poison the combined armed forces of the United States at their highest wartime strength."⁸ The warnings could not have been clearer, and they all came true, as nearly half the bomb's fission products fell back into the lagoon's water or onto the target ships.⁹

Stafford Warren, Operation Crossroads's radiological safety (or radsafe) director, warned that Baker would cause severe contamination in the lagoon and that the target ships "may remain dangerous for an indeterminable time thereafter," but these warnings were ignored. Despite drone boat readings of 730 roentgen per day near the center of the target array (more than twice the lethal dose), the first patrol boats entered the lagoon 41 minutes after the shot, followed by a salvage group, radsafe monitors and technicians, who boarded 12 target ships to retrieve data and instruments. By the end of the day 49 support ships returned to Bikini's lagoon with nearly 15,000 men on board.¹⁰

⁶William S. Parsons to Admiral William H. P. Blandy, memorandum, December 3, 1945, Box 4, Entry 1, Folder 8, Record Group 77, Manhattan Engineer District Records, National Archives.

⁷Commander, JTF-1, Operation Plan, Annex E (Safety Plan) (1946), App., pp. 1286-89; Berkhouse et al., Operation Crossroads, p. 60.

⁸Henry W. Newson to Norris E. Bradbury, memorandum entitled "Possible Difficulties in Naval Tests," December 17, 1945, p. 4, DOE/CIC (Department of Energy Coordination and Information Center, Las Vegas) 120851.

⁹Fee, Radiological Decontamination, Vol. I, p. 14.

¹⁰R. J. Buettner, "Safety Prediction - Test Baker," pp. 14-16, n.d., DOE/CIC 140564; Commander, JTF-1, Operational Report, pp. VII-(C)-53, VI-D-79; Berkhouse et al., Operation Crossroads, pp. 97, 104; Shurcliff, Technical Report, p. 20.12.

Radiation levels on some of the target ships remained dangerously high even a week after the shot, and boarding them was unsafe except for brief visits. To make matters worse, radioactivity in the lagoon's contaminated waters quickly spread to the support ships. Warren's radsafe plan cautioned that no apparatus on the support ships that used saltwater cooling should be operated until the seawater in the lagoon was declared safe. Nevertheless, the day after Baker, the support ships were authorized to operate their evaporators, which distilled seawater for drinking. As a result, every nontarget support vessel became contaminated, just as the planners had feared, and fission products became concentrated on underwater hulls and in condensers, evaporators, and saltwater pipes.¹¹

Despite all the warnings that the highly radioactive column of water would come crashing down on the ships, no one had planned for the disaster that had been predicted with such amazing accuracy. "Since the nature and extent of contamination of the targets was completely unexpected," the Navy later admitted, "no plans had been prepared for organized decontamination measures."¹²

2. Overexposures of Sailors

Few of the 42,000 men at Bikini were even aware of the hazards and the need to take radsafe precautions, and others did not care. One of Stafford Warren's radsafe colleagues wrote about one captain "who insists on a 'hairy-chested' approach to the matter with a disdain for the unseen hazard, an attitude which is contagious to the younger officers and detrimental to the radiological safety program."¹³ Two other monitors wrote of "an attitude of indifference on the part of the ship's officer" of one target vessel, the Prinz Eugen. Despite readings of 50 times the maximum daily tolerance dose, some crew members were ordered to spend the night there, because the ship's officer believed that there was "such a large safety factor

¹¹Herbert Scoville, Jr., to Warren, memorandum, April 27, 1946, Box 1, Folder 13, Warren papers; Bureau of Ships minutes of conference of 3 May 1946 (May 7, 1946), Box 1, Folder 13, Warren papers; Berkhouse et al., Operation Crossroads, p. 105.

¹²Fee, Radiological Decontamination, Vol. I, p. 4.

¹³George Lyon to Parson, memorandum, May 5, 1947, DOE/CIC 140713.

that it can be ignored."¹⁴ "Radioactive material "was scattered over the decks of the ships," said a Navy speaker at a 1947 conference on defensive atomic warfare. "Men walked through it, tracked it around, and got it on their clothing and hands and faces. There was some tendency on the part of the men to disregard a danger which they could not see, nor touch, nor smell."¹⁵

It is impossible to recreate with any accuracy radiation levels on every part of the target ships over specific periods of time. It is equally impossible to determine who may have ingested or inhaled radioactive materials or received high doses from open cuts or wounds. One sailor sleeping close to saltwater lines may have received much higher doses than another sleeping three feet away. One man may have worn protective boots and gloves during a decontamination shift, while another just a t-shirt. "The erratic location of high and low intensities on the target ships does not permit an accurate estimate of any one individual's exposure," noted Stafford Warren shortly after the tests.¹⁶

Virtually all the available evidence, though, points to the conclusion that radiation dangers following the Baker test were serious and that not enough steps were taken in time to prevent widespread overexposures. A host of factors - the overwhelming amount of contamination from the base surge, lingering radiation on the target and nontarget ships, malfunctioning radsafe equipment, a shortage of monitors, failure to observe radsafe regulations, and the ignorance and indifference displayed toward the radiation hazard by officers and enlisted men alike - caused many men regularly to receive radiation doses in excess of the daily tolerance dose of .1 roentgen. Moreover, this tolerance dose, deemed appropriate in 1946, has now been lowered for the general population by a factor of 365, so that today the current recommended maximum dose for one

¹⁴R. J. Rieckhoff and D. W. Jones to William A. Wulfman, memorandum, August 10, 1946, DOE/CIC 140634.

¹⁵F. T. Winant, Jr., "Command Problems of Atomic Defense Warfare," September 1947, DOE/CIC 48678.

¹⁶Warren to Blandy, memorandum, August 7, 1946, DOE/CIC 140692; GAO, Operation Crossroads: Personnel Radiation Exposure Estimates Should Be Improved (1985) (GAO/RCED-86-15).

year is approximately the same dose that was recommended as the maximum exposure for one day at Operation Crossroads.

The anecdotal documentary evidence of overexposure, even at the 0.1 roentgen level, is simply overwhelming. Warren's radsafe section detected 67 overdoses in one three-day period, with some men exposed to 20 times the daily limit, and one batch of 125 film badges showed 26 overexposures. Work on two target ships was stopped due to the crew's overexposure from working and living on the ships. Ten days after the tests, 35 target ships had average topside readings more than 10 times the daily tolerance dose, and some had readings 70 times greater.¹⁷

3. Actions by Stafford Warren to End Operation Crossroads

In early August, Warren warned Admiral William Blandy, the head of Operation Crossroads, that "some of the most important ships have had many lethal doses [of plutonium] deposited on them and retained in crevices and other places." He warned Blandy that plutonium "is the most poisonous chemical known" that "it is insidiously toxic in very minute quantities," and that his monitors lacked the equipment to measure it.¹⁸ Scientists knew that only a few millionths of a gram of radium lodged within human bones could prove fatal. Plutonium, the main component of the Baker bomb, has the same effects and is even more toxic. The Baker test, though, did not involve millionths of grams of radium, or even hundredths of grams. It created the equivalent of thousands of tons of radium.¹⁹ Nevertheless, for weeks after the test men routinely boarded target ships, swept them, scraped them, ate their meals on board, and even slept aboard them; they were constantly exposed to the danger of inhaling plutonium and fission products from Baker.

¹⁷Scoville, "Nuclear Radiation Effects," pp. J.11, J.46, Los Alamos National Laboratory; Warren to Blandy, message, August 15, 1946, p. 2, Box 4, Folder 5, Warren papers; list of overdoses evaluated on 9 August 1946, 8 August 1946 and 6/7 August 1946, Box 4, Folder 1, Warren papers; Wulfman to Warren, memorandum, August 9, 1946, DOE/CIC 64034.

¹⁸Warren to Blandy, memorandum, August 7, 1946, p. 2, DOE/CIC 140692.

¹⁹Sawyer, Report of the Technical Director, p. 25; Scoville, "Nuclear Radiation Effects in Tests A and B - Preliminary Report of" (September 25, 1946), Enclosure J to Sawyer, Report of the Technical Director, p. J.7.

On August 3, nine days after Baker, Warren was convinced he had a disaster on his hands. He told Blandy that decontamination efforts were largely useless and that the target ships "should be declared hopelessly contaminated." He warned that there was "increasing evidence" of overexposures, and he called for an immediate end to Operation Crossroads.²⁰

Blandy rejected this recommendation at a staff meeting on August 6, but Warren did not let matters rest there. "Control of the safety of the target ships' crew is rapidly getting out of hand," he asserted bluntly the next day. "The target vessels are in the main extensively contaminated with dangerous amounts of radioactivity. Quick decontamination without exposing personnel seriously to radiation is not possible under the present circumstances and with present knowledge." Worried about the breakdown of much of his monitoring equipment, he also sent an urgent cable to Los Alamos requesting 300 new Geiger counters and 50,000 film badges. "Strongly urge that . . . this [be] treated as an actual emergency involving safety to life," he teletyped.²¹

Blandy changed his mind on August 10, when faced with Warren's clear evidence, now buttressed by analyses flown in from Los Alamos. All decontamination work was halted, and most of the target vessels were towed to Kwajalein Atoll, 250 miles away. Operation Crossroads "was conducted as an emergency and a lot of compromises were made to meet this emergency," Warren wrote to a radSAFE monitor later that year. "I never want to go through the experience of the last three weeks of August again."²²

While the documentary records of Operation Crossroads do not suggest a conspiracy to cover up the test results, they do show a deliberate decision by the scientific and medical experts to refuse

²⁰Warren to Blandy, memorandum, August 3, 1946, DOE/CIC 140630.

²¹Warren to Blandy, memorandum, August 7, 1946, DOE/CIC 140692; handwritten teletype message from the USS Haven, Box 4, Folder 5, Warren papers, UCLA; D. R. Bergh, Flag Secretary, memorandum prepared on August 6, 1946, Conference on CJTF-1, Los Alamos National Laboratory.

²²Warren to Viola Warren, letter, August 11, 1946, DOE/CIC 140498; Warren to Admiral Fahrion, memorandum, August 13, 1946, DOE/CIC 140666; Warren to William Myers, letter, December 31, 1946, DOE/CIC 140703.

even to consider the possibility that a serviceman's presence at Bikini might later result in a radiation-related disease. In fact, one of the main purposes of a Medico-Legal Board established at Bikini by Stafford Warren was to provide a paper trail designed to lay the groundwork for future denial of legal claims that might be brought against the U.S. government arising from Operation Crossroads. Robert R. Newell, chairman of the Board, readily admitted just weeks after the tests that the board "initially . . . served to reassure Col. Warren that the safety measures adopted by RadSafe were such as to attract no justifiable criticism, and to give what assurance was possible that no successful suits could be brought on account of the radiological hazards of Operation Crossroads."²³

Nevertheless, lawsuits were on the minds of top Crossroads officials at an October 1946 meeting to discuss decontamination issues. "Having in mind both medical and legal protection," the participants, led by Admiral Blandy, agreed that documents relating to decontamination efforts should be classified "and that the public relations angle should be considered carefully to remove confusion and the impression that the Navy is 'covering up.'" And at a meeting in late November to discuss possible litigation from the sale of target ships as scrap, one participant noted that Leslie Groves, the head of the Manhattan Project that developed the atomic bomb, "is very much afraid of claims being instituted by men who participated in the Bikini tests."²⁴

Although the instantaneous bursts from Able and Baker sank only 14 ships, radiological contamination eventually sank almost the entire target fleet. Most of the ships still showed high levels of radioactivity one year after the tests. In the end, all but six vessels were sunk by the bombs or deliberately scuttled or sunk because of lingering radioactivity.

"We want ships which are tough, even when threatened by atomic bombs," wrote the official Navy historian of Operation Crossroads in 1947. "We want to keep the ships afloat, propellers turning, guns firing; we want to protect the crews so that, if fighting is necessary, they can fight well today and return home unharmed

²³Report of Medico-Legal Board, August 19, 1946, DOE/CIC 140683.

²⁴Fee, Radiological Decontamination, Vol. III, pp. 78, 112.

tomorrow."²⁵ His comment captured the Navy's attitude toward the bomb after the war. No one yet recognized that the greatest danger of atomic warfare -- or of weapons testing -- lay not in the immediate blast and heat from the atomic bomb but from the deadly lingering radioactivity. The ghost fleet would not sail back under the Golden Gate Bridge, triumphant and invincible. The ships survived the familiar enemies of heat and blast, but the Navy had never fought an alpha particle.

B. Removal of the Bikinians.

And what of the Bikinians, who were moved off their atoll by the Navy? The working assumption for the past 48 years has been that the Bikinians agreed to leave their atoll forever, or at least indefinitely. Navy Commodore Ben Wyatt wrote that when he visited Bikini on February 6, 1946, to ask the Bikinians if they would leave, their leader, "King" Juda (as he was later dubbed by the media), immediately stood up and said, "If the United States government and the scientists of the world want to use our island and atoll for furthering development, which with God's blessing will result in kindness and benefit to all mankind, my people will be pleased to go elsewhere."²⁶

In a matter of minutes, or hours at most, the Bikinians had readily acquiesced in Wyatt's request, without even knowing where they would go. Why? Several factors may have contributed to their decision: America's power, the destructive force of the bomb, the islanders' fear. Another possibility remains, though, and that is that Wyatt only asked the Bikinians to leave temporarily.

The evidence is there. There were no plans to use Bikini after Operation Crossroads, which originally was planned for three shots. When asked by a reporter if the Bikinians would be moved permanently, Admiral Blandy responded, "I don't think that it should necessarily be permanently." At a later press conference he said that

²⁵Shurcliff, Bombs at Bikini, p. 2.

²⁶Dorothy Richard, United States Naval Administration of the Trust Territory of the Pacific Islands (1957), Vol. III, pp. 509-10; Honolulu Star-Bulletin, February 23, 1946, p. 11.

Bikini would be a restricted security area "for some time after the tests," and in numerous statements he said the Bikinians' return to their homeland was being measured in terms of months.²⁷

Blandy's statement was not an isolated incident. Wyatt said in November 1946, "They can't go home now," and Infantry Journal's April 1946 issue reported that "unless the resulting radioactivity is permanent, and experts are confident that it will not be, the inhabitants will be permitted to return to their homes when the operation is completed."²⁸

The Bikinians clearly believed that they would be able to return home shortly. On the day they were moved, they told a Life magazine reporter that they would return to Bikini one day, and an anthropologist who visited them in 1948 wrote in the early 1950s that "these people understood that their enforced absence from the atoll was to be only short-lived."²⁹

As a precaution against future lawsuits, Navy surveyors photographed each dwelling on Bikini and counted each family's coconut and pandanus trees. Their homes and all buildings on Bikini, though, except for the church and meeting hall, were destroyed, and the Navy transplanted 2,500 palm trees from Bikini and Rongerik "for the purpose of improving the appearance" of Kwajalein, as Wyatt wrote in a confidential memorandum.³⁰

²⁷Blandy press conference, January 24, 1946, p. 5, File No. 39-1-37, Record Group 80, General Records of the Department of the Navy; Honolulu Star-Bulletin, September 5, 1946, p. 13; Blandy, lecture at Constitution Hall, Washington, D.C., November 22, 1946, p. 2, DOE/CIC 100955.

²⁸Time, November 11, 1946, p. 31; "The Atomic Bomb Test," Infantry Journal (April 1946).

²⁹Life, March 25, 1946, p. 105; Mason, Leonard, "Relocation of the Bikini Marshallese: A Study in Group Migration," p. 109 (Ph.D. dissertation, Yale University, 1954).

³⁰Commodore Ben Wyatt to ComMarianas, memorandum entitled "War Diary - Submission of," April 13, 1946, Record Group 313, Records of the Naval Operating Forces, National Archives; CINCPAC to Navy Department, cable, February 14, 1946, Box 225, Record Group 374, Defense Atomic Support Agency.

IV. Bravo

Bikini would not be used again for nuclear testing until 1954. Enewetak Atoll was the site of atomic bomb tests in 1948 and 1951, but after the outbreak of the Korean War the National Security Council, concerned that the Russians or Chinese might invade the Marshall Islands, recommended a site in Nevada for further atomic tests.

The return to the Pacific was occasioned by America's decision to develop the hydrogen bomb, a weapon triggered by an atomic bomb. With a force much greater than the atomic bomb, the AEC could not risk testing the new weapon in the continental United States, so Enewetak was prepared for a new round of tests. The world's first hydrogen bomb, code-named Mike, was tested at Enewetak on November 1, 1952, but it was not a usable weapon. It was larger than a two-story building and weighed 65 tons. A better bomb was needed.

The Russians had tested their first atomic bomb in 1949. Then, in August 1953, they tested a deliverable hydrogen bomb. The Soviets had not only caught up with American nuclear technology; they had actually moved ahead, and America had to develop and test a hydrogen bomb capable of delivery by aircraft.

The result was the Bravo shot, detonated at Bikini on March 1, 1954. Bravo, with an explosive force equal to nearly 1,000 Hiroshima-type atomic bombs, vaporized the test island and parts of two others, sucked them more than 20 miles into the atmosphere, and left a gaping mile-wide crater in the lagoon floor. The force of the explosion shook buildings at Kwajalein, 250 miles away. Incidentally, President Eisenhower at one point considered attending the test, but five weeks before the shot he turned down the AEC's invitation: "Thanks," he wrote by hand to AEC chairman Lewis L. Strauss. "Don't believe I can do it."³¹

³¹January 26 letter from Lewis L. Strauss to President Eisenhower, DOE/CIC 33075.

The 1946 Baker shot at Bikini was a harbinger of the Bravo shot. The four themes I mentioned earlier - arrogance, ignorance, secrecy and devastating effects of fallout were all repeated -- on a grander scale. Bravo's history is better known than Baker's, but what I want to discuss today are some of the facts about Bravo that were not known eleven years ago, when the Compact and the Section 177 Agreement were signed:

A. Possible resettlement of Bikini

But for the 1954 Bravo shot, it is likely that the Bikinians would have returned to their homeland. Scientific teams returning to the atoll in the late 1940s and early 1950s detected such low levels of radioactivity that the AEC saw no reason not to return the islanders. These are the words of Dr. John C. Bugher, the head of the AEC's Division of Biology and Medicine at a 1952 meeting: "The health hazard here is essentially negligible. There is no reason why these people should not be returned as far as the hazards from persistent radioactivity may be concerned."³²

B. Withholding information on Bikini's condition

An April 1952 memorandum for Gordon Dean, the AEC chairman, confirmed Bugher's conclusions, but suggested that the AEC provide no information on the fish in the lagoon. The following are excerpts from that memorandum:

From a health standpoint, Bugher advised that radioactivity on Bikini Island itself is very, very low. . . . Some of the fish around the island have appreciable amounts of radioactivity in their bones, but would be of no possible harm to the natives if they returned. It would be undesirable to volunteer any information on this latter point if it can be conveniently avoided, as there is some doubt as to the basis on which we would prevent the natives from returning.³³

³²Bugher, memorandum to files entitled "Return of Natives to Bikini," April 10, 1952, AEC Division of Biology and Medicine, Box 326-78-3, Box 1, MRA Bikini and Eniwetok, Doc. No. 9458, U.S. Department of Energy.

³³April 9, 1952 memorandum for Gordon Dean, prepared by M. W. Boyer, AEC General Manager, DOE/CIC 138945.

C. Possible destruction of Enewetak

As the AEC prepared for hydrogen bomb tests in the Pacific, it wanted to keep Bikini in reserve as a test site because it was concerned that the Mike shot would completely wipe out Enewetak. Here is an excerpt from an April 1952 memorandum to AEC chairman Gordon Dean:

Bikini may be necessary in connection with future weapons tests, either because the 1952 test at Eniwetok may result in its elimination, or the fall-out may be so bad that we could not go back for so long that we would have to find another test site.³⁴

Another internal AEC memorandum made the same point:

It is possible that the tests planned for Eniwetok may result in the destruction of a part or all of the atoll. A severe shock may . . . cause the crumbling of the entire structure. In such case there would be no other test site feasible in the entire area other than Bikini.³⁵

A third memorandum made the point in less bureaucratic style: "AEC may need Bikini if Eniwetok goes up with M[ike.]"³⁶ Eventually, five of the six shots in Operation Castle, including the Bravo test, were held at Bikini, not Enewetak, resulting in the destruction of parts of Bikini, not Enewetak.

D. Danger zone

The greatest irony of Bravo concerned the decision whether to evacuate any Marshallese for the shot. For Operation Crossroads, back in 1946, the Navy, at the recommendation of Stafford Warren, had evacuated the Marshallese living on the three inhabited atolls closest to Bikini -- Rongelap, Wotho, and Enewetak -- but no damage

³⁴Id.

³⁵Bugher, memorandum, supra, note 32.

³⁶April 7, 1952 memorandum entitled "Possible Return of Bikini Natives," DOE/CIC 103587.

was caused to these atolls.³⁷ Thus, in 1953, when the Navy suggested extending the danger zone to include Ailinginae and Rongelap and evacuate its residents, the Interior Department balked.

Trust Territory High Commissioner Elbert Thomas, the highest ranking U.S. official in Micronesia, was reluctant to displace more Marshallese again. "Their reaction to an enlargement of the area of activity will be apprehension, and fear that future extensions may place any of them in the same homeless position as the Bikini people now occupy," he wrote in a memorandum to his superiors in Washington more than one year before Bravo. "While it is impossible to predict the exact nature of the reactions, experience has shown that the most probable result would be first, a lowering of morale with a consequent reluctance to fend for themselves, followed by the expectation that the Government would provide their food in return for the land that had been taken." He therefore suggested that the boundaries of the danger zone be drawn precisely to exclude these atolls:

I find it difficult to accept the proposals of the Atomic Energy Commission even with full realization of the significance of the work they are doing. I do urge you to do everything in your power to limit the boundaries of the proposed Danger Area to exclude Ailinginae Atoll in its entirety, as well as any other atolls or islands in the Marshalls other than Bikini and Eniwetok.

As a compromise, he proposed expanding the danger zone to a point three miles off the western shore of Ailinginae Atoll: "This would at least avoid the necessity of informing the Marshallese of the expanded Danger Area and so protect them and the administration from the results of what would be, at the very best, unsettling knowledge for them to have."³⁸

³⁷Warren to JTF-1, memorandum entitled "Evacuation of Atolls Neighboring to Bikini," March 13, 1946, DOE/CIC 140512. If it became necessary to jettison the atomic bomb on Able Day, Warren recommended that it be dropped on Taongi Atoll, an uninhabited atoll located some 225 miles northeast of Bikini and more than 200 miles from the nearest inhabited Marshallese atoll.

³⁸February 5, 1953 letter from Thomas to James P. Davis, Director, Office of Territories, U.S. Department of the Interior, Record Group 326, DMA Collection, Box 3782, U.S. Department of Energy Archives, DOE/CIC 30094.

The AEC agreed, and the results were tragic.³⁹ Here is how the AEC explained the decision:

If the danger area had included such inhabited atolls as Rongelap and Utirik it would have required that the natives of those atolls be evacuated and that a permanent home be found for them elsewhere. [T]he Department of the Interior was not sympathetic to removing the natives, having experienced considerable difficulty with the Bikini natives who were relocated. . . .⁴⁰

The irony was painful. For an atomic bomb the size of the ones dropped on Hiroshima and Nagasaki, the Navy in 1946 had evacuated Marshallese for hundreds of miles to the east, west and south of Bikini. For a hydrogen bomb in 1954 that the government knew would be at least 400 to 500 times more powerful than those bombs, no one was evacuated from these atolls.

E. Inadequate planning

The radsafe planners were not really sure what to expect at Bravo, largely because the United States had only conducted one previous hydrogen bomb test -- the 1952 Mike shot at Enewetak. There was very little local fallout at Mike, and the radsafe teams had been unsuccessful in tracking the bomb's radioactive cloud. "Although conscientious efforts were made to document the fallout from MIKE," wrote the Bravo Task Force commander, "only about 5% of the total debris could ever be accounted for."⁴¹ Nevertheless, the radioactive cloud from Mike had risen to a height of 26 miles, and government scientists knew that dangerously high levels of fallout

³⁹Marion W. Boyer to Chief of Naval Operations, memorandum dated March 31, 1953, DOE/CIC 137067; Cushing to CINCPAC, "Radiological Hazards in the Marshall Islands Area during Operation Castle" (July 30, 1953), attachment to DOE/CIC 26198; Richard G. Hewlett and Jack M. Holl, Atoms for Peace and War 1953-1961 (1989), pp. 170-71.

⁴⁰Vincent G. Huston to Kenneth D. Nichols, "Chronology of Establishment of Danger Area around Pacific Proving Grounds" (March 30, 1954), DOE/CIC 29635.

⁴¹April 12, 1954 memorandum for the record by Alvin C. Graves and P. W. Clarkson entitled "Bravo Shot, Operation Castle," DOE/CIC 17859.

could occur on atolls even hundreds of miles away from the site of a hydrogen bomb shot.⁴²

As a result, several scientists expressed doubts about the weather forecasting plans for the Bravo shot. Listen to the words of Harold F. Plank of the Los Alamos Test Division criticizing a technical report on the expected configuration of the test, the rise of the plume and weather tracking:

The approach of the whole report is felt to be based on too few observations by observers with too little experience. The result has been the creation of a theoretical picture and conclusions based on this picture which are not supported by the facts.⁴³

F. Winds

Ever since March 1, 1954, the U.S. government has explained that there was an unexpected "shift of the winds occurring after the detonation," which carried the radioactive fallout from Bravo eastward over Bikini and most of the islands in the atoll, as well as over Rongelap, Utrik and other atolls in the Marshall Islands.⁴⁴

We now know that this is not true. The shot was deliberately set off despite the fact that AEC officials knew exactly which way the winds were headed. According to now-declassified documents, the weather briefing at 7:00 a.m. the day before the shot predicted "no significant fall-out . . . for populated Marshall Islands," but later in the day "the trend was toward an unfavorable or marginal condition," and by 6:00 p.m. "conditions were getting less favorable."⁴⁵

⁴²Meril Eisenbud, An Environmental Odyssey: People, Pollution, and Politics in the Life of a Practical Scientist (1990), pp. 74-75, 82.

⁴³July 17, 1953 memorandum from Plank to Alvin C. Graves entitled "Comment on the Pate-Palmer Report to CJTF-7 Dated 30 June 1953," DOC/CIC 120579.

⁴⁴U.S. Atomic Energy Commission, Major Activities in the Atomic Energy Program, January - July 1954 (1954), p. 51, DOE/CIC 40054.

⁴⁵March 1, 1954 memorandum for record by Richard A. House, RadSafe Officer, entitled "Command Briefing, 1800, 28 February 1954," House memorandum entitled "Radsafe Narrative Sequence of Events," memorandum by C. D. Bonnot, USAF Staff Weather Officer, entitled "Summary of Weather Situation for Bravo

The midnight briefing, less than seven hours before the shot, showed "less favorable winds at 10,000- to 25,000-foot levels." Winds at 20,000 "were headed for Rongelap to the east," and "it was recognized that both Bikini and Eneman Islands would probably be contaminated."⁴⁶ The final weather and radiological safety check, at 4:30 a.m., shows that the AEC knew there was a problem: "The general recommendation for this briefing was one of minimizing the effects of the low level northerly and westerly winds."⁴⁷

Was the shot postponed? No. Were precautions taken for the Marshallese downwind? No. Were precautions taken for the U.S. personnel downwind? Yes. Following the midnight briefing, Bikini's weather outlook was downgraded to unfavorable, and Joint Task Force Seven ordered several of its ships to move 20 miles farther out to sea and to the south, to get out of the path of the fallout.⁴⁸

This evidence puts the Bravo shot in a different category from an "unexpected" wind shift. This attitude -- getting the Americans out of harm's way but taking no action to protect the Marshallese -- is perfectly consistent with the attitude displayed in some of the radiation experiments that were conducted in the 1940s and 1950s. Those experiments weren't conducted on Harvard Law School

Shot," Tabs A and B to April 12, 1954 memorandum for the record by Graves and Clarkson, note 41, above.

⁴⁶ Bonnot memorandum entitled "2400M Weather Briefing Prior to Bravo Shot," House memorandum entitled "Command Briefing, 0000, 1 March 1954," Tab A to April 12, 1954 memorandum by Graves and Clarkson, note 41, above; Edwin J. Martin and Richard H. Rowland, Castle Series, 1954 (1982), pp. 201-02 (DNA 6035F).

⁴⁷ March 1, 1954 memorandum for record by Richard A. House, RadSafe Officer, entitled "Final Weather and RadSafe Check, 0430, 1 March 1954," Tab A to April 12, 1954 memorandum by Graves and Clarkson, note 41, above.

⁴⁸ House, "Radsafe Narrative Sequence of Events," 1, Tab B to April 12, 1954 memorandum by Graves and Clarkson, note 41, above; Bonnot, "Summary of Weather Situation for Bravo Shot," note 45, above; March 22, 1954 memorandum from H. C. Burton to Chief of Naval Operation entitled "Radioactive Contamination of Ships and Radiological Exposure of Personnel of Task Group 7.3 due to BRAVO, the First Nuclear Explosion of CASTLE," p. 1 (DOE/CIC 76555); House, "Final Weather and RadSafe Check," note 47, above; Martin and Rowland, Castle Series, note 46, above, p. 202.

students. They were conducted on the handicapped, the uninformed, people with no political power.

This attitude existed at the Bravo shot. Some of the Americans were moved out of harm's way. The "natives," as they were called, were left in place. This obviously gives rise to the charge of using the Marshallese as guinea pigs. Have I seen evidence of U.S. government officials deliberately planning to expose Marshallese to fallout? No. Have I seen evidence of U.S. government officials failing to take immediate action to get Marshallese out of harm's way? Yes. And either way, the result -- irradiated Marshallese enabling U.S. scientists to measure the long-term effects of low-level radiation -- is the same. If the weather forecast created enough risk to move the ships, either the Marshallese in danger should have been moved or the shot should have been postponed.

Let me review parenthetically the attitude of American officials toward the Lucky Dragon incident, the Japanese fishing vessel whose 23 crewmen were sprinkled with fallout from the Bravo shot. AEC chairman Lewis Strauss declared that the boat, despite its 800 pounds of tuna, was really a "Red spy outfit" snooping on the American tests. This attitude was echoed by John M. Allison, the American ambassador in Tokyo, who cabled Secretary of State John Foster Dulles that the Lucky Dragon accident was followed by a "period of uncontrolled masochism," as the nation, aided by an unscrupulous press, seemed to revel in fancied martyrdom." Allison claimed that this breakdown was triggered by a small group of Japanese doctors, whom he described as "fuzzy-minded leftists" who had "vistas of nation-wide publicity at home and world-wide scientific prominence as exclusive proprietors of the world's first hydrogen bomb patients." Allison also recommended a quick lump-sum settlement with the crew in order to weaken "the position of neutralists, pacifists, feminists, and professional anti-Americans."⁴⁹

G. Publicity.

As you know, the 236 inhabitants of Rongelap and Utrik atolls, 28 American servicemen on Rongerik and 23 crewmen of a Japanese fishing vessel were sprinkled with fallout from the Bravo shot. AEC

⁴⁹Allison to Secretary of State, memorandum entitled "Fukuryu Maru," May 20, 1954, DOE/CIC 71978.

chairman Lewis Strauss immediately opting for total secrecy, advising all personnel that "no public release will be made in regard to fallout or evac[uation] in Trust Territory unless forced by leak or other circumstances. . . . Wash[ington] presently plans no [report,] no announcement and urgently requests you not make anything public on these matters."⁵⁰

Los Alamos test division leader Alvin Graves strongly objected to this policy. In an "Eyes Only" cable to Kenneth E. Fields, the Task Force Director of Military Application, he said he was "very concerned" about Strauss' order. "I should regret very much the impression that we are being furtive in our actions with regard to these people," he said.⁵¹

No one really paid much attention to the Marshallese after the Bravo shot. They petitioned the United Nations to ask the U.S. Government to take all "possible precautionary measures" in future tests, but the Trust Territory High Commissioner dismissed this action. In a May 18, 1954 letter to the Interior Department, he described the petition as "one of the things the Micronesians are so fond of doing -- passing resolutions and getting up petitions. They spend a great deal of time doing just that."⁵²

Bikini would still be the site of 20 more nuclear tests over the next four years, all of which caused even more destruction at the atoll. For example, the shots following Bravo in the Castle series were designed in part to measure the size of new craters caused by atomic and hydrogen bombs, and the May 28, 1956 Zuni shot vaporized most of the western end of Bikini's Eneman Island.

The rest of the story has already been made public, except for the AEC's plan to return the people of Rongelap to their atoll. For you English literature majors, it was called "Project Hardy (The Return of

⁵⁰Naval message 041905Z from Combined Joint Task Force 7 to CINCPAC Fleet, March 4, 1954 (AEC files, Record Group 326, box 3772, folder MRA7 Caste, DOE/CIC 28581).

⁵¹Naval message 042202Z from Graves to Fields, March 5, 1954 (Los Alamos National Laboratory files, Bravo fallout folder), DOE/CIC 125331.

⁵²Records of the Office of Territorial and International Affairs, U.S. Department of the Interior.

the Native).” It’s nice to know that the AEC could find a chuckle in this tragedy.⁵³

V. Committee Action

Where does all of this leave the Bikini people today and what steps should this Committee take?

A. By calling on the U.S. Government to declassify and release all remaining documents related to the nuclear testing program in the Marshall Islands, this Committee can help determine whether the “changed circumstances” provision of the Compact Section 177 Agreement should be invoked. Releasing all the documents will level the playing field and help all sides make a more informed decision.

B. The people of Bikini are the recipients of a Resettlement Trust Fund, designed in part for a cleanup of their islands. But in appropriating this trust, Congress only took into account the cost of cleaning up two of Bikini’s 23 islands. No funding was provided for a cleanup of any of the other 21, and the Bikinians do not want to go back to a half (or really one-tenth) clean atoll. This Committee should call on the House Interior Appropriations Subcommittee to provide more funding for the cleanup of all of the atoll.

The Bikinians, I might say, take very good care of their trust funds and spend their money wisely. In fact, in the 12 years since Congress first appropriated the Resettlement Trust Fund, every penny has been audited and accounted for to the Interior Department and the Auditor-General of the Marshall Islands, who, incidentally, has determined that there is only one local government in the entire Marshall Islands whose books are in good enough shape to audit -- the Bikinians.

C. Immediately following the Bravo shot, the AEC contracted with Brookhaven National Laboratory to monitor the health of the people of Rongelap and Utrik. Section 103(h)(1) of the Compact of Free Association Act (Public Law No. 99-239) indefinitely continues that program for the populations of Rongelap and Utrik.

⁵³April 14, 1954 memorandum entitled “Project Hardy (The Return of the Native),” DOE/CIC 125302.

Brookhaven doctors briefly monitored the people of Bikini following their abortive nine-year return to Bikini in the 1970s, when the Bikinians had experienced what was described as an "incredible" one-year 75% increase in their body burdens of cesium-137.⁵⁴ One report prepared for DOE by Lawrence Livermore Laboratory in 1976 made the Bikinians feel that they, too, were human guinea pigs. The report said:

Bikini Atoll may be the only global source of data on humans where intake via ingestion is thought to contribute the major fraction of plutonium body burden. . . . It is possibly the best available source of data for evaluating the transfer of plutonium across the gut wall after being incorporated into biological systems.⁵⁵

Responsibility for monitoring the Bikinians was later turned over to the Marshall Islands Government under the Section 177 health care program established by the Compact. As I have explained in detail to your staff and to the Interior Department, that program has not been successful, and the Bikinians have slipped between the cracks -- excluded by Congressional legislation from the Brookhaven program and victimized by an inefficient Marshallese health care program. The Bikinians are entitled to better health care, and I urge this Committee to take the lead in amending Brookhaven's mandate to include the people of Bikini.

D. Section 103(h)(2)(B) of the Compact of Free Association Act continued for five years, through 1991, the U.S.D.A. supplemental food program for the people of Bikini. Following that five-year period, Congress, in §304 of P.L. No. 102-247, extended the program for another five years and included the peoples of Bikini, Enewetak, Rongelap and Utrik. However, this extension set an annual cap on funding of \$500,000, which is no longer enough to provide for the food needs of the people of Bikini.

The primary reason the Bikinians rely so heavily on this program is because they are still not back on their atoll. Most of

⁵⁴Washington Post, May 22, 1978, p. 1.

⁵⁵Quoted in Washington Post, April 3, 1978, p. 9; Jonathan M. Weisgall, "The Nuclear Nomads of Bikini Atoll," Foreign Policy 39 (Summer 1980), p. 90.

them live on Kili Island, 425 miles south of Bikini, which has neither lagoon nor atoll and therefore cannot begin to meet the food needs of the people. The Bikinians therefore call on this Committee to amend P.L. 102-247 by providing that U.S.D.A. food will be provided strictly on an eligibility basis, without regard to an appropriations ceiling. This is more in keeping with how the Department of Agriculture runs its supplemental food program for Native Americans.

* * *

The people of Bikini gave the United States everything they had -- their land and their home. They demanded nothing in return; they asked only that the United States care for them until their land had served its purpose and could be returned to them. The United States promised that it would do so, but 48 years later, the Bikinians are still not home. They lived up to their side of the deal, and the United States did well by them. The tests in the Marshall Islands cost hundreds of billions of dollars (in 1994 dollars), but the United States never questioned their value, because they assured U.S. nuclear superiority over the Soviet Union and led to immediate savings of billions of dollars in the defense budget in the late 1940s and 1950s. As the AEC told Congress:

Each of the tests involved a major expenditure of money, manpower, scientific effort and time. Nevertheless, in accelerating the rate of weapons development, they saved far more than their cost.⁵⁶

Bikini was a real bargain for the United States.

I would be pleased to answer any questions you may have.

⁵⁶U.S. Atomic Energy Commission, Thirteenth Semiannual Report of the Atomic Energy Commission (1953), p. 18.