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Marshall Islands Chronology

1944 to 1990

January 11, 1991



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**Prepared for the U.S. Department of Energy
Under Contract No. DE-AC68-87NV10594**

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MARSHALL ISLANDS CHRONOLOGY

TABLE OF CONTENTS

INTRODUCTION ii

HISTORICAL BACKGROUND iv

CHRONOLOGY 1

APPENDIX A - SECTIONS OF THE COFA 106

APPENDIX B - ABBREVIATIONS 110

APPENDIX C - LIST OF GROUPS INVOLVED WITH
MARSHALL ISLANDS DEVELOPMENT 114

ENDNOTES 116

LIST OF MAPS 155

MARSHALL ISLANDS CHRONOLOGY

INTRODUCTION

This draft chronology presents the historical record of events relating to the Department of Energy/Energy Research and Development Administration/Atomic Energy Commission (DOE/ERDA/AEC) medical, environmental, and radiological safety activities in the Marshall Islands from 1946 to 1990. Among the milestones included are agreements between the Marshallese and the United States, particularly those involving the DOE and its predecessors; relocation and resettlement efforts; legal responsibilities assumed by the AEC, the ERDA, and the DOE; administration of U.S. government activities in the islands; medical findings; environmental studies; radiation safety criteria applied in the Marshalls and in the U.S.; and U.S. nuclear testing activities in the region.

In order to facilitate use of the chronology by those interested in a particular aspect of developments in the Marshall Islands, we have assigned each entry one or more topical headings from the following list:

ADMINISTRATION
AGREEMENT
CLAIMS
CONGRESSIONAL RELATIONSHIP
CONTRACTOR
LEGAL RESPONSIBILITY
MEDICAL
POLICY
PLUTONIUM
RADIATION
RELOCATION
WEAPON TESTING

By selecting only those entries under a specific heading, one can follow more directly the story of any area of particular interest, such as the DOE medical program, government policy, or legal responsibility.

In developing this chronology, History Associates searched 1) records in the DOE Archives in Germantown, including the AEC Secretariat files, Division of Biology and Medicine files, the Joe Deal and Tommy McCraw collections, as well as a number of other collections; 2) records held by Environment, Safety, and Health (EH), including the files turned over by John Rudolph (DP) and by Management (AD); 3) files from the Nevada Operations Office made available to us by Harry Brown; 4) Joint Committee on Atomic Energy (JCAE) records at the National Archives; 5) the document collection at the Coordination and Information Center in Las Vegas, Nevada; 5) U.S. Statutes at Large, and 6) Executive Orders of the President. The

Department of Energy History Division researched the DOE Executive Secretariat files. Mr. L. Joe Deal and Mr. Roger Ray made available to us documentary materials from their personal files.

It was not possible in the time available to do an exhaustive search of DOE/ERDA/AEC records, although we believe that major developments involving the agency have been covered. No effort was made, with the constraints of time and funds, to examine records from other agencies involved in the Marshall Islands except as documents from these agencies were found in DOE files. For the chronology to be complete, we suggest searching, at the very least, the records of the Departments of the Interior, State, and Defense relating to the history of U.S. involvement in the Marshall Islands.

Appendices have been included to assist the user of the chronology—a summary of the terms of the Compact of Free Association and of its implementing agreement of relevance to the DOE, lists of officials and groups concerned with the administration of the Marshall Islands, a list of abbreviations and acronyms used in the chronology, and a series of maps showing the Marshall Islands and the individual atolls affected by nuclear testing. Also included are a map of U.S. Navy ship positions after Castle Bravo and a map showing relocations of the Marshallese through May 1954.

Copies of the cited documents have been provided. The documents are identified by alphanumeric designations, which are included in brackets following the citation in the endnote. When the relevant information is contained in one part of a larger document, the cited information has been indicated with a dark line in the left margin of the document.

HISTORICAL BACKGROUND

Low-lying coral atolls and islands scattered over some 180,000 square miles of the Pacific Ocean, the Marshall Islands have been home for the Marshallese people for over 2000 years. In recent times the situation of the Marshall Islanders has captured world attention because of the effects of United States nuclear weapon testing in the Marshall Islands.

Although the Spanish navigator Alvaro Saavedra sighted the Marshalls in 1529, westerners showed interest in the Marshalls only after British naval captains explored some of these islands in the eighteenth century. The British named the islands after one of those exploring naval captains. As a result of agreements with island chiefs and Great Britain, Germany established a protectorate over the Marshalls in 1886. Japan seized the islands during World War I and in 1920 received a League of Nations mandate to administer them. Japanese troops used the islands during World War II until 1944 when United States troops ousted them and occupied the Marshall Islands.

Meanwhile, during the final months of World War II United States and Allied scientists successfully developed the atomic bomb, which the U.S. used against Japan. After the war ended, the United States sought a remote area with accessible ports and land for installations to test atomic weapons. In 1946 U.S. officials selected the Marshall Islands' Bikini Atoll and obtained the consent of the Bikini chief to relocate his people elsewhere. The United States subsequently conducted two nuclear weapon tests at Bikini in July 1946. In 1947 the United Nations designated the United States as administrator of the Trust Territory of the Pacific Islands, which included the Marshalls.

The trust agreement permitted the U.S. to close off the Marshall Islands for security reasons. Subsequently, the United States expanded its weapon testing area, which the government named the Pacific Proving Grounds. After reaching an accord with the Enewetak people and relocating them, the U.S. used Enewetak for nuclear weapon testing in 1948, 1951, and 1952. The U.S. nuclear weapon testing task force returned to Bikini for the 1954 Castle series. The first shot of the Castle series produced such extensive radioactive fallout that a third Marshallese group, the Rongelapese, was evacuated from its contaminated home island and relocated for several years.

After Castle Bravo the Marshall Islanders petitioned the United Nations to stop the nuclear testing in their territory or, if the testing was essential, to exercise all precautions to safeguard the inhabitants and their possessions. The U.S. continued to test at Bikini and Enewetak in 1954, 1956, and 1958. By October 31, 1958, the U.S. had tested 66 nuclear devices in the Marshall Islands since 1946.

Since Castle Bravo the U.S. has conducted medical, environmental, and radiological safety activities in the Marshall Islands and has cared for inhabitants

suffering from conditions, including thyroid cancer, resulting from exposure to the Castle Bravo fallout. The U.S. government also has continued radiological surveys of the Marshalls and has mounted cleanup activities to make contaminated areas habitable. In the meantime, the Bikini people have been relocated several times. In 1980 the Enewetak people returned to their atoll, but insufficient food caused 100 of them to leave a year later. The Rongelapese, resettled in Rongelap Island in 1957, moved away from Rongelap in 1985 because of fear of contamination from living on Rongelap Island.

In the 1980s the U.S. and the Republic of the Marshall Islands negotiated a series of agreements connected to the "Compact of Free Association," signed into law in the U.S. on January 14, 1986. Portions of the Compact and agreements require the Department of Energy to fulfill certain obligations to the Marshallese.

Since 1947 the AEC, ERDA, and the DOE have been responsible for numerous safety and health activities related to the Marshall Islands affected by nuclear testing. In 1990 DOE Secretary James D. Watkins designated the DOE Office of Health as the unit responsible for the DOE share of Marshall Islands programs. To assist it in carrying out these duties, the Office of Health subsequently requested History Associates to prepare a chronology on activities connected with the nuclear test activities in the Marshall Islands.

MARSHALL ISLANDS CHRONOLOGY

Jan - Feb 44

**ADMINISTRATION
LEGAL RESPONSIBILITY**

The Marshall Islands, administered by Japan since the end of World War I, fall to the United States military forces during the Pacific war.¹

2 Mar 44

AGREEMENT

The government of the Trust Territory of the Pacific Islands (T.T.) conveys to the U. S. government the exclusive right to the use and occupancy of Enewetak Atoll for an indefinite period of time for "the sum of ten dollars." (This 1944 date is used in this chronology because the date probably refers to the first agreement negotiated between a Marshall Islands leader and a U.S. representative, probably military. The first paragraph of this document identifies the date of the agreement as that of 2 March 1944, but this particular document was drawn up later, probably in 1957. The term "Trust Territory," was not used in 1944 for the Marshall Islands and the signers were officials in 1957, not 1944. Subsequent language and signers of the document also indicate the agreement was written later. This agreement was recorded in the Marshall Islands District Record Book 1, pp. 5, 6, and 7, on June 20, 1957.)²

Jan 46

WEAPON TESTING

U.S. officials select Bikini Atoll for the first U.S. nuclear weapon tests in the Pacific.³

Feb 46

**AGREEMENT
RELOCATION**

The military governor of the Marshall Islands obtains the consent of a Bikini chief to relocate his people so that Bikini can be used for nuclear weapon tests.⁴

7 Mar 46

RELOCATION

The U.S. Navy evacuates Bikini Atoll inhabitants to Rongerik Atoll.⁵

May 46

RELOCATION

Residents of Enewetak are moved to Meck Island in Kwajalein Atoll, and the Rongelap and Wotho people are evacuated to Lae Atoll for the duration of the Bikini tests.⁶

1 and 25 Jul 46

WEAPON TESTING

The United States detonates two nuclear weapons at Bikini in Operation Crossroads.⁷

1 Aug 46

ADMINISTRATION

President Harry S. Truman signs the Atomic Energy Act creating the Atomic Energy Commission (AEC).⁸

1 Jan 47

ADMINISTRATION

The Manhattan Engineer District, responsible for developing the atomic bomb, transfers atomic energy work to the AEC.

2 Apr 47

LEGAL RESPONSIBILITY

The United Nations (UN) Security Council designates the United States as administering authority of the Trust Territory of the Pacific Islands (T.T.), including the Marshall Islands. Article 5 entitles the United States to establish naval, military, and air bases and to erect fortifications in the territory. Article 6 obliges the United States to

Promote the economic advancement and self-sufficiency of the inhabitants ... regulate the use of natural resources; encourage the development of fisheries, agriculture, and industries; protect the inhabitants against the loss of their lands and resources ... [and] protect the health of the inhabitants ...

Article 13 recognizes the authority of the administrator to close areas for security reasons.⁹

18 Jul 47

ADMINISTRATION

President Truman approves the Territory of the Pacific Islands trusteeship agreement between the United States and the UN Security Council and delegates administration of the Pacific Trust Territory to the Navy on an interim basis.¹⁰

Aug 47

**MEDICAL
RELOCATION**

An official investigating board recommends removal of the Bikini Islanders from Rongerik because of insufficient food and water.¹¹

20 Nov 47

**LEGAL RESPONSIBILITY
RELOCATION
WEAPON TESTING**

AEC Chairman David E. Lilienthal informs President Truman that the use of Enewetak for nuclear testing will require the evacuation of 145 natives. According to Lilienthal, to meet U.S. obligations under the Trusteeship Agreement, the U.S. government will accord normal constitutional rights of citizens to the Enewetakese but will treat them as U.S. wards; will keep displacement to the minimum required for their safety; will resettle the Enewetakese according to agreements reached with them; and will provide adequately for their well-being in their new locations. Lilienthal states that the AEC and the Secretary of Defense will apprise the State Department that during weapon testing at Enewetak the U.S. will not subject T.T. inhabitants "to perceptibly greater danger than, say, the people of the United States."¹²

25 Nov 47

**RELOCATION
WEAPON TESTING**

President Truman signs a directive for the removal of natives from Enewetak. Secretary of Defense Robert S. Lovett recommends that the forthcoming news release on the selection of a proving ground at Enewetak ought to mention that the natives are not now living in any historic home but instead on islands to which U.S. forces moved them during World War II.¹³

1 Dec 47

**RELOCATION
WEAPON TESTING**

The AEC announces the selection of Enewetak Atoll as a site for proving grounds because it has the fewest inhabitants to care for and is isolated. The U.S. government will transfer the Enewetak inhabitants to sites they will select and will reimburse them for the lands utilized. The AEC explains that the establishment of these proving grounds is necessary to provide a suitable area to verify by experimentation "indicated results" of laboratory studies. Bikini is unsuitable for such testing because it lacks sufficient land surface for the necessary scientific information.

21 Dec 47

RELOCATION

The Navy moves 145 Enewetak inhabitants to Ujelang prior to U.S. testing nuclear weapons at Enewetak.¹⁵

31 Jan 48

RELOCATION

On a visit to Rongerik Leonard Mason, a University of Hawaii anthropologist, and James Milne find a critical food shortage affecting the Bikinians.¹⁶

14 Mar 48

RELOCATION

The Bikini evacuees are moved to a temporary camp on the Kwajalein Navy base.¹⁷

16 Apr - 16 May 48

WEAPON TESTING

The United States conducts three nuclear weapon tests at Enewetak as part of Operation Sandstone.¹⁸

28 Apr 48

ADMINISTRATION

The AEC goes on record as desiring that Enewetak Atoll be retained as a permanent proving ground for nuclear weapons after the completion of Operation Sandstone.¹⁹

18 Jun 48

CONGRESSIONAL RELATIONSHIP

The House of Representatives and the Senate establish a joint congressional committee of 12 members to recommend legislation to administer the Pacific Islands trust territory and

To assure to the peoples of such areas justice, peace, and tranquility, a voice in their civic affairs and government, the development of their economies and the protection of their civil rights, all with due regard to the established customs of such peoples.²⁰

24 Jun 48

ADMINISTRATION

Congress appropriates \$2.25 million to the U.S. Navy for administering Pacific island governments, including the annual appropriations for the Trust Territory (T.T.).²¹

29 Jun 48

**ADMINISTRATION
RELOCATION**

Admiral D. C. Ramsey, commander-in-chief of the U.S. Pacific Fleet (CINCPACFLT), and his staff visit the Enewetakese at Ujelang and find the community "a happy one...well kept, and the people...healthy and industrious."²²

2 Nov 48

RELOCATION

After Bikini leaders select Kili Island for a settlement, the Navy moves the Bikini community of 184 people to Kili, which lacks a lagoon and protected anchorage.²³

Mar 49

**CONTRACTOR
RADIATION**

The Holmes and Narver (H&N) Construction Company and Los Alamos Scientific Laboratory (LASL) study the feasibility of replacing radiologically contaminated top soil with uncontaminated soil at the Pacific Proving Ground (PPG) at Enewetak Atoll.²⁴

9 Apr - 26 May 51

WEAPON TESTING

In Operation Greenhouse the United States detonates four nuclear weapons at Enewetak.²⁵

8 Jun 51

ADMINISTRATION

The AEC accepts an informal arrangement under which the Secretary of the Interior would administer Enewetak and "would do everything they [presumably the Secretary of the Interior] could to maintain conditions satisfactory to the Commission's program there."²⁶

1 Jul 51

ADMINISTRATION

An executive order transfers the T.T. civil administration to the Secretary of Interior.²⁷

12 Jul 51

LEGAL RESPONSIBILITY

The AEC states that an information paper is to be prepared explaining responsibilities of agencies associated with the maintenance of the Enewetak Proving Grounds, including the ownership of land and facilities.²⁸

20 Jul 51

**ADMINISTRATION
CONTRACTOR
RADIATION**

At Enewetak the AEC is represented through the Santa Fe Operations Office by H&N. H&N performs the AEC post-Greenhouse "roll-up," including reducing residual radioactivity somewhat by bulldozing surface dirt away from shot areas.²⁹

31 Aug 51

ADMINISTRATION

Congress appropriates funds to the Department of the Interior (DOI) for the FY 1952 for expenses of the high commissioner and the T.T. and for grants to the T.T. for support of governmental functions. In addition, Congress authorizes the T.T. to make purchases through the General Services Administration and permits transfers of excess Navy Department property to the Secretary of the Interior for administering the T.T. (Public Law (P.L.) 82-136).³⁰

25 Sep 47 - 17 Aug 51

**ADMINISTRATION
CLAIMS**

The Navy Department's Bureau of Yards and Docks is designated in 1947 as the representative of the AEC to obtain title to land at Enewetak. The Bureau asserts that the AEC should pay the Enewetak natives \$515,360 for the land area of which they were historic owners until their December 1947 removal. The AEC contends that payment should be made only after proper establishment of claims based on land ownership. As of August 1951 no such claims have yet been lodged against the AEC.³¹

28 Sep 51

ADMINISTRATION

Congress appropriates \$1,772,000 to the Navy to acquire land for yards and docks facilities in the T.T. (P.L. 82-155).³²

27 Apr 52

RELOCATION

A delegation, including former Sen. Elbert Thomas, high commissioner of the T.T., discusses the plight of the Bikinians with AEC Chairman Gordon Dean. The delegation seeks a better place for the Bikinians to live because Kili lacks fishing opportunities and cannot receive supplies during at least four months of the year.³³

12 Sep 52

**RADIATION
RELOCATION**

The AEC concludes tentatively that the natives now living on Kili cannot be moved to Bikini because although Bikini "is in all probability quite inhabitable from the radiological point of view," the atoll satisfies operational requirements for a possible supplementary site.³⁴

Oct 52

RELOCATION

The Navy transports 169 Ujelang people 100 miles farther away from Enewetak for a temporary relocation as a precaution before Operation Ivy nuclear tests.³⁵

1-16 Nov 52

**RADIATION
WEAPON TESTING**

The United States conducts two nuclear tests at Enewetak in Operation Ivy.³⁶ Joint Task Force 132 observes no significant radioactive fallout from the detonation of the Ivy Mike shot, the first full-scale thermonuclear device fired by the U.S.³⁷

20 Dec 52

WEAPON TESTING

W. K. Phillips, chief of staff at headquarters of the CINCPACFLT, states that "the significance" of a danger area for radioactive fallout for safety purposes from nuclear testing "is not of great importance" but that the danger area is convenient for security matters. He adds that for Operation Ivy the joint task force maintained surveillance of all shipping within a 500-mile radius of the Enewetak shot site and conducted specific searches downwind up to 800 miles away.³⁸

5 Jan 53

WEAPON TESTING

CINCPACFLT recommends to the AEC a danger area of 160°35'-166°28' east longitude and 10°15'-12°45' north latitude for conducting nuclear tests in the Pacific.³⁹

6 Jan 53

LEGAL RESPONSIBILITY

The AEC confirms its retention of Bikini Atoll and Enewetak Atoll for an indefinite time for use in testing nuclear weapons. Simultaneously the Commission recognizes that the atolls' former native inhabitants may have land rights. Because the Departments of Navy and Interior are discussing which agency will adjudicate such rights, the AEC "will look to whichever agency it is agreed will ... adjust claims" against the AEC. Meanwhile, the AEC acknowledges "that the Interior Department will administer the trust territory government in these atolls and exercise surveillance over the former native populations."⁴⁰

5 Feb 53

WEAPON TESTING

T.T. High Commissioner Elbert D. Thomas protests the proposed eastern extension of the nuclear test danger area because the enlargement would include about two-thirds of Ailinginae Atoll. Thomas contends that removal of that atoll from use would harm the Rongelapese who obtain fish and other food from Ailinginae. He urges limitation of the proposed danger area boundaries to exclude Ailinginae and all other Marshall atolls and islands except Bikini and Enewetak. Thomas recommends an eastern danger area boundary of 166°17'.⁴¹

2 Apr 53

WEAPON TESTING

The AEC enlarges the PPG to include Bikini as well as Enewetak.⁴²

28 Apr 53

WEAPON TESTING

Brig. Gen. K. E. Fields, AEC director of military application, establishes a new danger area around the Pacific Proving Grounds of 160°35'-166°16' east longitude by 10°15'-12°45' north latitude.⁴³

7 May 53

**ADMINISTRATION
LEGAL RESPONSIBILITY**

Gen. K. E. Fields, director of military application, informs the AEC general counsel that the DMA "has always held that there is no need for purchasing or leasing" the land used at Enewetak and Bikini Atolls for weapon testing. He explains that with current AEC use of these atolls through agreement with the Navy and DOI, "We maintain possession to a sufficient degree" to conduct the AEC testing without hindrance.⁴⁴

26 Jun 53

WEAPON TESTING

Adm. A. W. Radford, commander-in-chief of the Pacific fleet, states that, based on Ivy experience, the aerial survey could be greatly reduced during Castle and that atolls in the Marshall Islands that lie within a potentially hazardous radius from the test site would require individual surveillance by the aerial technique.⁴⁵

21 Oct 53

**RADIATION
RELOCATION**

Gordon Dunning of the AEC discusses safety precautions for the Castle series with the observation that the "main objection to evacuation is the high cost and the logistic problems presented in supporting such an operation." Edward Heller of the JCAE reports that this matter will be discussed with Dr. John C. Bugher, director of the AEC division of biology and medicine (DBM) when he returns from his vacation in mid-November.⁴⁶

31 Oct 53

**RELOCATION
WEAPON TESTING**

In its preliminary radiological safety plan for the Castle series the joint task force does not expect to evacuate native populations before the Castle series. The rationale for not conducting such evacuations is based on February 1953 discussions between cognizant headquarters sections, radiological documentation from Ivy, "apparent unrealism in the assumption of health hazards of a magnitude conjectured for Ivy," a policy of financial austerity for FY 1954, and the unavailability of task force equipment for evacuations. The plan states, "However, consideration of populated islands will be one of the major factors influencing the decision to shoot."

Commenting on the proposals, H. G. Hopwood, chief of staff for the CINCPACFLT, advises the CINCPACFLT that the upwind populated areas "present least concern since they are situated in a potentially safe region" but that the "cloud tracking within the danger area will not provide information useful to CINCPACFLT in the discharge of his responsibilities for the safety of other units and populated islands of the Pacific. . . . In the remote circumstance that extreme post shot conditions develop a necessity for the temporary evacuation of any populated island in the Marshalls, units of JTF-7 would be required to accomplish this emergency measure upon the request of CINCPACFLT."⁴⁷

11 Dec 53

**ADMINISTRATION
RADIATION
RELOCATION
WEAPON TESTING**

The AEC appoints Maj. Gen. P.W. Clarkson as the senior AEC representative for Operation Castle at the PPG. Among his responsibilities are decisions to act in emergency situations to protect the health and safety of task force personnel and property and "the national interest." Clarkson also is the military commander for JTF-7.⁴⁸

Revising the Castle radiological safety plan, Clarkson emphasizes, "Temporary evacuation of native populated islands is not recommended as a pre-shot measure." He will use weather as a major safety measure to detonate shots "when wind conditions present minimum hazards to inhabited islands and air and surface routes of the Pacific." He augments the cloud tracking for Castle and places the downwind area from the shot site as first priority, the upwind area in the task force camp site as second priority, the upwind region of populated atolls in the southeast quadrant as third priority, and air and surface routes through Wake and the Marshall Islands as least priority.

Clarkson acknowledges "a remote possibility of adverse conditions out to populated atolls." Because of "operational difficulties" Clarkson has insufficient documentation of fallout from Pacific high-yield shots, especially on the area above the Pacific tropopause, which is 15,000 feet higher than the Nevada Test Site tropopause. He also cites limitations on weather and radsafe forecasting techniques that make it impossible to assure "that no radsafe conditions conducive to possible adverse criticism will ensue."

Relying on an earlier prediction by Dr. T. L. Shipman, LASL health division leader, Clarkson cites Ujelang as a remote possibility for fallout hazards. The commander considers similar hazards at other populated islands "very remote." If temporary evacuation of the natives is required after a shot, Clarkson will use task force security ships for that purpose, and personnel with T.T. administrative and interpretation experience will be required to supervise that effort.⁴⁹

1 Mar 54

**RADIATION
WEAPON TESTING**

The United States detonates an experimental thermonuclear device in Castle Bravo at Bikini. Because of a surprisingly higher yield than expected radioactive fallout extends beyond the announced danger area and reaches Rongerik Atoll, site of a U.S. weather station, and inhabited areas, including Rongelap and Utirik Atolls in the Marshall Islands. Also, according to the AEC, these atolls "were contaminated by radioactive fallout because of an unexpected shift in wind conditions."⁵⁰

1 Mar - 15 May 54

**RADIATION
WEAPON TESTING**

Operation Castle tests are conducted at Bikini.⁵¹

Estimates differ on the amount of radiation exposure received by the Marshall Islanders. A military report made shortly after the detonation suggests Rongelapese exposures of "150 r. whole body gamma."⁵²

Another military memorandum reports that 64 Rongelapese may have received up to 130 roentgens over 51 hours; 17 additional Rongelapese on Ailinginae, 80

roentgens in 58 hours; 154 Utirik residents, 17 roentgens in 78 hours; and 401 Ailuk inhabitants, not evacuated, less than 20 roentgens total doses for their lifetimes.⁵³

An Armed Forces Institute of Pathology study estimates point source doses at "260 r." for the Rongelapese and "20 r." for the Utirik group.⁵⁴

Later studies by the AEC/DBM estimate that some Rongelapese may have received a whole-body gamma dose of 175 roentgens; that 20 percent incurred deep lesions; 70 percent, superficial lesions; and 10 percent, no lesions; and that 55 percent lost some hair, which regrew later.⁵⁵

According to later estimates, the thyroid glands of young Marshallese children absorb approximately eleven microcuries of iodine¹³¹ and from 700 to 1400 rads.⁵⁶

2 Mar 54

RADIATION

After the task force radsafe officer measures 0.200 R/hr at 500 feet in a morning flyover at Rongerik, the radsafe officer evacuates 28 U.S. weather personnel from that atoll. An afternoon flight over the populated Marshalls extrapolates 1.350 R/hr at ground level at Rongelap; 0.400 R/hr at Ailinginae, 0.001 R/hr at Wotho, 0.240 R/hr at Utirik, and 0.076 R/hr at Ailuk. The flight over the unpopulated atolls calculates ground contamination as 0.600 R/hr at Bikar Island and Taongi Island at 0.014 R/hr. Task force officials then decide to evacuate Rongelap, Ailinginae, and Utirik Islands. They send the destroyer USS Philip 43 nautical miles southwest of Eneu Island, to evacuate Rongelap and Ailinginae the following morning and the USS Renshaw, 13 nautical miles north of Eneu Island, to evacuate Utirik on 4 March. Meanwhile radsafe monitors flown to Rongelap measure 1.400 R/hr in the living quarters of Rongelap Island.⁵⁷

3 Mar 54

RADIATION RELOCATION

The U.S. Navy DDE Philip evacuates 64 inhabitants from Rongelap and eighteen Rongelapese from Ailinginae and takes them to Kwajalein.⁵⁸

JTF-7 radsafe monitors measure 0.160 R/hr on the ground at Utirik Island.⁵⁹

4 Mar 54

MEDICAL RADIATION RELOCATION

The DDE Renshaw evacuates 154 Utirik inhabitants to Kwajalein. The JTF-7 reports "comparatively low radiological exposure of this group." Medical examinations at Kwajalein of the Utirik people reveal no sickness but find a loss of appetite among some small children, a condition physicians attribute to diet change.⁶⁰

5 Mar 54

AGREEMENT CONTRACTOR MEDICAL RADIATION RELOCATION

Gen. Clarkson confers on relocation and medical conditions of the Marshallese with Rear Adm. Clarke, commander, Naval Station, Kwajalein; Brig. Gen. Estes, commander, Task Group 7.4; Dr. Thomas White, health division, Los Alamos Scientific Laboratory (LASL); Commander L. H. Alford, USS Renshaw, members of Clarke's staff; and local representatives of the T.T.⁶¹

Describing the condition of the evacuated Rongelapese, the JTF-7 commander reports, "Many complained of stomach aches and headaches accompanied by vomiting on first day with similar symptoms [sic] to lesser degree on second day." Five days later Gen. Clarkson, the task force commander, challenges this report by stating that the latter is based on Rongelapese statements and that medical personnel observed only one person vomiting.⁶²

The people from Rongelap and Utirik want to know when they can return home and are told "that it would be in approximately two to four weeks" with a final answer after surveys determine whether it is necessary to keep them evacuated until the end of the Castle operation. The Rongelap and Utirik people also are concerned about their animals. Because Clarkson determines that it would be less expensive to replace the animals later than care for them now, the task force commander expects no action to supply food and water to these animals. Some of the evacuees left money underneath their huts, and the conferees state, "Care will be taken to insure that any re-entry parties do not disturb the natives' belongings."⁶³

Captain Haight of the AEC/DMA reports that physical examinations of the evacuees show satisfactory health and no symptoms of radiation sickness as of this date.⁶⁴

Gen. Clarkson assures Adm. Clarke and the T.T. representative "that the Joint Task Force would stand any expense from Task Force funds over and above normal Naval or T.T. expenses" for such items as rations and interpreters' pay and would evacuate by air anyone stricken with radiation sickness to Tripler Hospital.⁶⁵

6 Mar 54

RADIATION

Bugher advises Alfred J. Breslin at JTF-7 that there is no limit for the number of soil samples to collect from the Marshall Islands area exposed to Castle Bravo fallout. Bugher is particularly interested in ruthenium¹⁰⁶ and strontium⁸⁹ and ⁹⁰.⁶⁶

8 Mar 54

RADIATION

Dr. Herbert Scoville, technical director of the AFSWP, leads a JTF-7 radiological survey team measuring the gamma dose rates in soil and water from Castle Bravo fallout at Rongelap and Utirik Islands. The milliroentgens(mr) per hour at waist height average 375 at Rongelap and 40 mr per hour at Utirik.⁶⁷

9 Mar 54

RADIATION

Because of the 2 March detection of contamination of Bikar Atoll, approximately 300 miles east of Bikini, Scoville's survey team measures 160 mr per hour waist-high from the soil at Bikar Island on unpopulated Bikar Atoll in the aftermath of Castle Bravo.⁶⁸

10 Mar 54

MEDICAL PLUTONIUM RADIATION

The Scoville survey team, measuring waist-high from the soil, finds an average outside dose rate of 280 mr per hour at Enewetak Island, Rongerik Atoll, and 100 mr per hour at Sifo Island, Ailinginae Atoll--all rates resulting from the Castle Bravo shot.⁶⁹

Dr. Thomas L. Shipman receives local approval to collect and analyze urine samples from the natives and air weather personnel exposed to the Castle Bravo

fallout. He recommends analyses of various substances, including plutonium, by LASL.⁷⁰

11 Mar 54

**MEDICAL
RADIATION**

The AFSWP chief, with the concurrence of the JTF-7 commander, adds to the weapons effect program of Operation Castle project 4.1, "Study of Response of Human Beings Exposed to Significant Beta and Gamma Radiation due to Fall-out from High Yield Weapons," a study of the Marshallese exposed to fallout. The command designates Commander E. P. Cronkite of the U.S. Navy as project officer.⁷¹

12 Mar 54

RADIATION

As part of the fallout collection for Castle Bravo, JTF-7 radiological survey parties send water and soil samples from 12 Marshall Islands atolls to the AEC New York operations office (NYOO) for analysis.⁷²

15 Mar 54

**CONGRESSIONAL RELATIONSHIP
PLUTONIUM
RADIATION
WEAPON TESTING**

Joint Committee on Atomic Energy (JCAE) members Sen. John O. Pastore (D-Rhode Island) and Rep. Chet Holifield (D-California) visit evacuees at Kwajalein Island and hold hearings on the radiation exposure from the Castle Bravo operation. Pastore and Holifield report that "some of the residents of the Islands received radiation exposures considerably in excess of the tolerances set for workers in atomic energy plants" but that, to date, scientific and medical testimony "seems to indicate that no permanent injury will occur" as a result of the excess exposure.⁷³

A military report shortly after the detonation suggests that the Rongelap children's white blood cell counts are lower than those of adults as a result of Castle Bravo. In testing urine of the affected Marshall Islanders, an unidentified (possibly LASL) scientist states, "This plutonium number you cannot depend on."⁷⁴

Gen. Clarkson decides that the remainder of the Castle detonations will be restricted to limited weather conditions under which it will be safe to fire because Bravo showed what Ivy Mike did not: that high-yield detonations can release radioactivity with potential health hazards hundreds of miles away from ground zero. Clarkson vows to "take every precaution to avoid danger during the course of future operations to other populated areas of the Pacific." Because of Castle Bravo he extends the danger area.⁷⁵

Mid-Mar 54

**ADMINISTRATION
RADIATION**

Upon determination of excessive radioactive fallout in Castle Bravo, the commander of JTF-7 requests assistance of the Department of Defense (DOD) and the AEC and asks for a medical team and a medical study of exposures. The Armed Forces Special Weapons Project (AFSWP) of the DOD and the AEC/DBM share responsibility for the organization of the initial medical team, which is formed by "experienced" personnel from the Naval Medical Research Institute (NMRI) and the Naval Radiological Defense Laboratory (NRDL) and directed by Eugene P. Cronkite, M.D., head, hematology division, NMRI, Bethesda, Maryland.⁷⁶

16 Mar 54

RADIATION

Naval station, Kwajalein, reports signs of radiation injury to the Rongelap group with a "modest decrease in white blood cells." During the first 48 hours two reportedly vomited and others experienced nausea. "These residents received approximately 125 r. cumulative."⁷⁷

23 Mar 54

**MEDICAL
RADIATION**

The Rongelap Islanders are the only Marshall Islanders now showing radiation sickness symptoms, including hair loss, skin and mucous membrane lesions, and blood count averages about two-thirds of normal.⁷⁸

26 Mar 54

**CONTRACTOR
RADIATION**

The University of Washington Laboratory of Radiation Biology (LRB) participates in the first expedition to Rongelap Atoll to collect biological samples for measurements of radiation contamination.⁷⁹

1 Apr 54

**ADMINISTRATION
MEDICAL**

Graves requests the LASL director to contrive an excuse to call Shipman back to Los Alamos as soon as possible. LASL Director Norris E. Bradbury replies that Shipman is returning in a few days.⁸⁰

13 Apr 54

**MEDICAL
PLUTONIUM
RADIATION**

Dr. Thomas L. Shipman of LASL reports that the analysis of urine of Rongelapese and air weather service personnel exposed to Castle Bravo fallout shows an initial total body dose of iodine¹³¹ of about 50 microcuries accompanied by shorter-lived iodine isotopes equivalent to about 5 millicuries of iodine¹³¹ at the time of uptake. The estimated total integrated dose to the thyroid is about 130 "rep" of which 50 "rep" is from iodine¹³¹. Shipman gives estimated body burdens of other nuclides; he finds plutonium as less than one-half of the maximum accepted permissible amount.⁸¹

20 Apr 54

CLAIMS

Prominent Marshall Islanders petition the UN to end the Pacific test operations if possible, but, if tests are necessary, to take all possible precautions to protect the health and welfare of the residents.⁸²

22 Apr 54

**ADMINISTRATION
MEDICAL
RADIATION**

According to JTF-7 Commander Gen. Clarkson, although the Joint Chiefs of Staff (JCS) directive for Castle "is silent on responsibilities" for the radioactive exposure

of the Marshallese, the "CMM consider restoration to preevacuation standards is inescapable moral responsibility [of] both AEC and DOD. . ." (Possibly "CMM" refers to the commander.) Clarkson believes that CINCPACFLT should be assigned responsibility with AEC assistance for continued medical observation of the islanders and accompanying radiological studies.⁸³

27 Apr 54

**ADMINISTRATION
RELOCATION**

Persons not affected or slightly affected by Castle Bravo have been moved to a tent camp on Ebeye Island, Kwajalein Atoll, and the high commissioner of the T.T. expects the DOD and the AEC to restore clothing and livestock and assure continued medical checks as needed to the Marshallese evacuees.⁸⁴

May 54

**RADIATION
RELOCATION**

The Utirik residents are allowed to return to their island, which Brookhaven National Laboratory (BNL) physicians find "only slightly contaminated and considered safe for habitation."⁸⁵

2 May 54

**RADIATION
RELOCATION**

Bugher, the AEC/DBM director, reports that "it appears to be undesirable" for Rongelap residents to return to their home for a year but that the health of the islanders seems to be satisfactory.⁸⁶

21 May 54

**CONTRACTOR
MEDICAL
PLUTONIUM
RADIATION**

Commenting on the LASL analysis of data on plutonium excretion from urinalysis of the Rongelapese, Gordon Dunning, AEC/DBM health physicist, questions the reliability of the LASL data. According to the LASL data, three of the readings reported are above the maximum permissible body burden.⁸⁷

24 May 54

**RADIATION
RELOCATION**

Gordon Dunning of AEC reports that the highest strontium⁹⁰ value on Naen Island is 0.5 microcuries per square foot and on Rongelap 1.6×10^{-2} microcuries per square foot. He adds that "only a small fraction" of the Rongelapese food supply comes from island plants; that the calcium content is significantly greater than 1,000 pounds per acre and thus will correspondingly reduce the strontium⁹⁰ uptake; and that weathering may eliminate a small amount of the strontium activity. Therefore, Dunning thinks that the amount of strontium⁹⁰ in the soils should not prevent a return of the Rongelapese to their islands.⁸⁸

28 May 54

**CLAIMS
LEGAL RESPONSIBILITY**

AEC Chairman Lewis Strauss requests the Secretary of Defense to consider settling claims of the Marshall Islanders resulting from the weapon test activities because the Federal Tort Claims Act precludes the AEC from covering Marshall Islanders' claims.⁸⁹

3 Jun 54

**CONTRACTOR
RADIATION**

Through a contract with the AEC the University of Hawaii agrees to manage the newly created Enewetak Marine Biological Laboratory on Medren Island, Enewetak Atoll. The AEC/DBM provides policy direction and sponsorship. The laboratory will serve as a base of information about the systematics, ecology, and life history of the atoll's flora and fauna.⁹⁰

21 Jun 54

**ADMINISTRATION
MEDICAL
RELOCATION**

Maj. Gen. E. McGinley, U.S. Army chief of staff, lists the following as responsible for the care and disposition of the Rongelap and Utirik Atolls inhabitants: Thomas A. Hardison as the CJTF-7 representative at Enewetak for the temporary care and disposition of the Marshallese affected by Castle Bravo; CINCPACFLT for overall responsibility for restoration of atolls with AEC assistance and for the return of inhabitants; the T.T. high commissioner for routine welfare and care; and the AEC/DBM for monitoring the physical conditions of the Rongelap and Utirik residents. The JTF-7 is paying for such matters as certain medical expenses for the evacuees, replacement of livestock lost because of contamination, and the construction of a temporary village for the Rongelapese at Majuro Atoll.⁹¹

9 Jul 54

**CLAIMS
LEGAL RESPONSIBILITY**

The DOD general counsel agrees to accept Marshall Islanders' personal injury, damage, and private property loss claims received by the AEC because the Foreign Claims Act authorizes the United States armed forces to pay such claims under \$5000.⁹²

12-13 Jul 54

**ADMINISTRATION
MEDICAL
RADIATION**

Participants in a conference on surveys and studies of the Marshall Islands agree to the need for a series of long-term medical and environmental surveys for an indefinite time of the Marshall Islands and their inhabitants affected by the nuclear weapon testing. Dr. John Bugher assumes that the DBM will bear financial responsibility for such work but expects the trust territory to handle normal medical care. "Our job is to see that it is done and that the facilities are provided," Bugher says.⁹³

16 Jul 54

**CONTRACTOR
RADIATION**

Both Navy and University of Washington scientists participate in a second survey of Rongelap Atoll to conduct radiation readings and collect biological samples for radiological measurements.⁹⁴

23 Jul 54

AGREEMENT

The AEC decides to request the Department of the Navy to represent the AEC in negotiating with the trust territory government for the use of Bikini and Enewetak.⁹⁵

Sep 54

**MEDICAL
RADIATION**

Follow-up medical examinations by the NMRI and the NRDL of the Rongelapese show, in general, healthy and normally active individuals with minimal amounts of residual radioactivity in about one-third of those exposed.⁹⁶

14 Sep 54

**CLAIMS
RADIATION
RELOCATION**

K. D. Nichols, the AEC general manager, informs the JCAE that the DOI and the Navy Department are currently taking steps to settle claims with inhabitants of Bikini and Enewetak atolls for the use of their lands.⁹⁷

According to the AEC, the amount of radioactivity in Bikini and Enewetak lagoons makes fish there unsuitable for human consumption.⁹⁸

The AEC also reports that radiological damage to Bikini and Enewetak includes high radioactive contamination levels that will require passage of several years before humans can inhabit these lands. Of the Castle Bravo fallout recipients, Ailinginae, Rongerik, Utirik, and Rongelap, only the latter is seriously affected, and AEC authorities expect Rongelap land areas to fall below the permissible occupational exposure rate in about 12 months.⁹⁹

25 Oct 54

**CONTRACTOR
RADIATION**

Dr. C. L. Dunham, deputy director of the AEC division of biology and medicine, agrees with representatives of the NRDL, the Bureau of Ships, and Dr. Lauren Donaldson of the University of Washington Applied Fisheries Laboratory (AFL) on proceeding with radiological surveys of Rongelap, Rongerik, Ailinginae, Bikar, and Utirik. The specimens and samples collected for the AEC will be forwarded to the AFL.¹⁰⁰

2 Dec 54

**ADMINISTRATION
CONTRACTOR
LEGAL RESPONSIBILITY
MEDICAL
RADIATION**

The DOD agrees to compensate the Rongelap and Utirik people for damages from the 1 March fallout, but under the Foreign Claims Act such claims must be

presented within one year after the occurrence. As of this date, no claims have been submitted.

The houses built by H&N, an AEC contractor, on Ejit Island in Majuro Atoll, are constructed so that the Rongelapese can remove them to their original homesites.

The AEC accepts responsibility for continued medical examinations of the Rongelap people as a routine precautionary measure.

The AEC also assumes responsibility for periodic radiological resurveys of Rongelap to determine when the inhabitants may return safely.

The AEC will pay for constructing an island communication system between Kili and Jaluit and for family housing units on Jaluit so that Bikinians on Kili may fish at the Jaluit lagoon.¹⁰¹

8 and 18 Dec 54

**CONTRACTOR
RADIATION**

AFL, NRDL, and AEC/DBM scientists collect samples and record radiation levels at Rongelap Atoll.¹⁰²

25-30 Jan 55

**CONTRACTOR
RADIATION
RELOCATION**

The NRDL and AFL make the most extensive survey and biological collecting trip to date for the AEC at Rongelap Atoll. The work reveals unsafe amounts of radioactivity in shellfish and crabs, important in the peoples' diets.¹⁰³

Feb 55

**ADMINISTRATION
RADIATION**

The AEC/DBM establishes criteria and procedures deemed necessary to protect the health and welfare of the general populace from consequences of weapon tests at the Nevada test site. The criteria are: up to 30 roentgens, no evacuation indicated; 30-50 roentgens, evacuation only if 15 or more roentgens are saved; and 50 roentgens and higher, evacuation without regard to the amount of the dose. The procedures are: make rough estimates of radiation doses before and after detonations and then take dose-rate readings with survey meters, which are held three feet above ground.¹⁰⁴

The NRDL collects soil and biological samples in the Marshall Islands for a radiological study.¹⁰⁵

Mar 55

**CONTRACTOR
MEDICAL
RADIATION**

Most of the Rongelap natives appear "in excellent general health", according to a medical recheck by Dr. Eugene P. Cronkite of BNL, Lt. Cmdr. Samuel D. McPherson of Bethesda Naval Medical Hospital, and Dr. Charles L. Dunham, deputy director of the AEC/DBM.¹⁰⁶

A resurvey of flora and fauna of the Marshall Islands by NRDL and AFL reveals "significant amounts of radioactive contamination" in the animals, food plants, water, and soil samples one year after their contamination by fallout from Castle Bravo. The U.S. NRDL finds the highest concentrations of internally deposited activity in marine specimens taken from the northern Rongelap lagoon. Zirconium⁹⁵-

niobium⁹⁵ and ruthenium¹⁰⁶-rhodium¹⁰⁶ contribute most of this activity. The NRDL team reports cesium¹³⁷ as the major radionuclide in land animals and island soil and lagoon water contaminated principally by ruthenium¹⁰⁶-rhodium¹⁰⁶ and zirconium⁹⁵-niobium⁹⁵.¹⁰⁷

6 May 55

AGREEMENT

The AEC finds acceptable a land agreement between the Departments of Navy and the Interior on the T.T. with the understanding that the Navy will pay for Enewetak and Bikini Atolls and that the AEC will be given an opportunity to approve in advance the form and content of the agreements covering those two atolls.¹⁰⁸

13 May 55

CLAIMS

LEGAL RESPONSIBILITY

After agreement by the Navy and the Pacific islands T.T. officers the Navy Foreign Claims Commission completes settlement of the claims of Marshall Islanders resulting from the March 1954 nuclear tests by paying totals of \$1,719.27 to Utirik inhabitants and \$5,162.53 to Rongelap residents in April and May.¹⁰⁹

8 Jun 55

RADIATION

RELOCATION

According to AEC Chairman Lewis L. Strauss, Rongelap currently is unsuitable for habitation because of radioactivity in the atoll's northern islands "somewhat above" exposures recommended by the National Committee on Radiation Protection (NCRP) (later named the National Council on Radiation Protection and Measurements) and the International Commission on Radiological Protection (ICRP) and radioactive contamination of mollusks and crustaceans, part of the natives' diets, in the southern half of the atoll. According to D. H. Nucker, deputy high commissioner of the T.T., shellfish, especially crabs and clams, are traditionally part of the Rongelapese diet. Nucker considers the island's shellfish too contaminated to eat. Although the Rongelapese have been alerted to the dangers of radioactivity in the residual contamination in mollusks and crustaceans, Nucker explains

We anticipate something less than 100 percent cooperation in the avoidance of these areas and foods were the people to return home...There simply is no practical way to police the people if they were to return home.

Consequently, Nucker recommends keeping the Rongelapese on Ejit Island for at least another six months.¹¹⁰

5 Oct 55

RADIATION

RELOCATION

K.E. Fields, general manager of the AEC, advises that repatriation of the Rongelap people should be deferred until data from another planned Rongelap Atoll radiological survey can be evaluated.¹¹¹

21-23 Oct 55

CONTRACTOR

RADIATION

The AFL collects soil and biological samples in the Marshall Islands area for radiological studies.¹¹²

7 Nov 55

**CONTRACTOR
RADIATION**

As part of a radiological study, the AFL takes biological and soil samples from the Marshall Islands.¹¹³

1956

RADIATION

The NRDL and Walter Reed Army Medical Center study radionuclides in urine samples of the Rongelapese.¹¹⁴

A radiobiological analysis indicates contamination during this year of reef fishes of Rongelap and Ailinginae Atolls, probably from Operation Redwing, conducted during spring and summer 1956.¹¹⁵

7-14 Feb 56

RADIATION

The NRDL collects soil and biological samples on the Marshall Islands for radiobiological study.¹¹⁶

9 Mar 56

CLAIMS

The Marshallese Congress Hold-over Committee petitions the UN Visiting Mission for

- cessation of lethal weapons test in their home islands or, if such tests are necessary, for taking all precautions prior to explosions to move humans and their possessions to a safe distance;
- instruction of inhabitants and their physicians in safety measures;
- adequate compensation of evacuees; and
- satisfaction of land claims of Bikini and Enewetak evacuees.¹¹⁷

6 Apr 56

ADMINISTRATION

Herzel Plaine of the office of the AEC general counsel describes the Marshall Islands as a Class C category mandate and indicates that the U.S. intends to treat the T.T. as an integral part of the U.S. in order to apply the laws of eminent domain to conducting the nuclear tests in the T.T.¹¹⁸

24 Apr 56

**MEDICAL
RADIATION**

Current medical examinations indicate that the Rongelapese show no conditions related to radiation effects but that they are restless because of inactivity and social tension among themselves and with other groups.¹¹⁹

5 May - 22 Jul 56

WEAPON TESTING

The U.S. conducts nuclear weapon tests at Enewetak and Bikini in Operation Redwing.¹²⁰

11-21 Jun 56

**CONTRACTOR
RADIATION**

On contract with the AEC to assess radioactive materials distribution from 1956 nuclear testing, the AFL collects and measures radiation in plankton, water, and fish samples near Bikini and Enewetak Atolls. This survey finds radioactivity at each station with the highest readings in plankton and water samples from stations north of Bikini Atoll.¹²¹

20-22 Jul 56

**RADIATION
WEAPON TESTING**

Fallout occurs at Parry Island and Enewetak and on ship routes between Bikini and Enewetak from the Operation Redwing Tewa shot. At 26 hours after the shot Dr. Gaelen Felt reports maximum readings of approximately 120 mr at Parry and Enewetak.¹²²

23-24 Jul 56

**CONTRACTOR
RADIATION**

The AFL collects soil and biological specimens in the Marshall Islands for a radiobiological study.¹²³

A Rongelap Island survey shows a range from 0.2 to 0.5 mr per hour with an average of 0.4 mr per hour.¹²⁴

1-20 Sep 56

**CONTRACTOR
RADIATION**

An AEC-sponsored survey conducted by AFL in the north equatorial current from the Marshall Islands to the Marianas shows a sharp decrease in the distribution of radioactivity east of Bikini and a gradual, irregular decrease west of Enewetak.¹²⁵

14 Nov 56

**LEGAL RESPONSIBILITY
RELOCATION**

G.L. Russell, deputy chief of naval operations, declines the request of the AEC director of military application, Brigadier General Alfred D. Starbird, to commit the Navy to fund the costs of repatriation and restoration for the Rongelapese displaced by the 1954 tests.¹²⁶

19 Nov 56

AGREEMENT

Through T.T. High Commissioner Delmas H. Nucker the U.S. government concludes an agreement with two chiefs representing the Enewetak Atoll. The agreement allows the United States to use Enewetak Atoll in exchange for granting the Enewetak people full use rights in Ujelang Atoll until they can return to Enewetak, and it provides \$175,000 to those Enewetakese possessing rights in Enewetak Atoll.¹²⁷

22 Nov 56

AGREEMENT

Representing the U.S. government, the high commissioner of the T.T. signs an agreement with chiefs and representatives of the Bikini people for the use of Bikini Atoll by the United States. The agreement provides in exchange full use rights of the

Bikini people to several islands, islets, and land parcels in the trust territory public domain and for \$325,000 for those with rights in Bikini Atoll.¹²⁸

27 Nov 56

RADIATION

The Advisory Committee on Biology and Medicine (ACBM) recommends that the Rongelapese be returned to their islands. To avoid an appreciable genetic risk to the U.S. population, the committee also recommends approval of a level of 10 roentgens in 10 years for criteria for off-site exposure to fallout for U.S. continental tests.¹²⁹

1957

**ADMINISTRATION
CONTRACTOR
RADIATION**

Seven Marshall Islanders are brought to Argonne National Laboratory (ANL) for tests to determine precise body burdens, including total body gamma activity. Argonne scientists have not yet obtained complete test results, according to information given at a JCAE hearing.

Dr. Robert A. Conard of BNL is responsible for annual medical surveys of the Marshallese.¹³⁰

6 Feb 57

**ADMINISTRATION
RADIATION
RELOCATION**

The AEC/DBM director recommends the return of the Rongelapese to their home as soon as rehabilitation is completed and the continuation of medical inspections and radiation surveys on the island. He bases his recommendations on projected statistics. Extrapolation of data suggests that gamma doses on Rongelap "would not greatly exceed (if at all)" 0.5 roentgens for the first year and would decline in later years. The director compares these figures to those recommended by the NCRP for adult workers of 0.3 roentgens per week with "a restriction and for population as a whole of a total of 14 million rem per million of population" over the first 30 years of life. He also projects that the average concentration of strontium⁹⁰ might be less than 360 Sunshine units and, with the elimination of land crabs, 107 Sunshine units. (A Sunshine unit equals 0.001 of the permissible body burden. The National Academy of Sciences (NAS) allows 100 Sunshine units for adult workers.)¹³¹

The AEC division of military application (DMA) also accepts responsibility to fund the reconstruction and rehabilitation of Rongelap at a projected cost of \$280,000.¹³²

21 Feb 57

RELOCATION

The AEC approves the return of the Rongelapese to their home island as soon as rehabilitation of the island is completed.¹³³

Prior to 27 May 57

**ADMINISTRATION
RADIATION**

The commander of JTF-7 designates a representative for each off-site location outside the PPG. The representative is responsible for the radiological safety of the

local population in the populated islands near the PPG and members of the task force.¹³⁴

25 Jun 57

RADIATION

A radiological survey of the gamma levels on Rongelap Island shows the average gamma dose rate as 0.26 roentgens per year.¹³⁵

29 Jun 57

RELOCATION

The Rongelapese are returned to their home island.¹³⁶

7 Apr 58

WEAPON TESTING

The AEC commissioners decide not to conduct two very high altitude firings of nuclear weapons at Enewetak Proving Ground because the AEC cannot assure absolutely that the Marshallese would receive no eye damage from the light resulting from such detonations.¹³⁷

1 May 58

RADIATION

As part of the Hardtack tests operation in the Pacific, the task force radiological safety office is prepared to warn, advise, and help inhabitants in taking safety measures in case of significant fallout in an inhabited area. The office's monitors also have trained Marshallese medical practitioners and health aides in basic emergency measures.¹³⁸

6 May - 19 Aug 58

WEAPON TESTING

The U.S. conducts nuclear weapon tests in Operation Hardtack I at Bikini, Enewetak, and Johnston Island.¹³⁹

31 Oct 58

WEAPON TESTING

In a moratorium, the United States, Great Britain, and the USSR suspend nuclear weapon testing.¹⁴⁰

Mar 59

CONTRACTOR

MEDICAL

RADIATION

A BNL team conducts the regular annual medical survey of the Rongelapese and finds no illnesses or diseases directly associated with radiation effects. Preliminary results suggest a "slight lag" in growth and development of exposed children, blood platelet levels somewhat below the unexposed population but within normal range, and increases, though within permissible levels, in body burdens of cesium¹³⁷, zinc⁶⁵, and strontium⁹⁰, attributed to living on "the slightly contaminated island of Rongelap."¹⁴¹

9-24 Mar 60

**CONTRACTOR
MEDICAL**

Results of the 1959 and 1960 medical surveys of the Marshallese by Conard of BNL reveal no "clinical signs and symptoms or abnormalities clearly attributable to" the 1954 Castle Bravo test. The tests reveal, however, "low body burdens of strontium⁹⁰, cesium¹³⁷, and zirconium⁶⁵" that are attributed to the contamination of the islanders' food supply. The report cautions that the "next five years will be the critical period for the development of leukemia in the Marshallese."¹⁴²

1961

**CONTRACTOR
MEDICAL**

Conard notes that body burdens of cesium¹³⁷, zirconium⁶⁵, and strontium⁹⁰ reach "equilibrium with environmental sources" and that "no effects from these isotopes have been detected."¹⁴³

Mar 61

**CONTRACTOR
MEDICAL**

Conard's medical survey reveals "no apparent illnesses or disabilities related to radiation effects" and a "generally good" state of nutrition. BNL examiners recommend future surveys because of persistent trends, such as the "incomplete recovery of certain blood elements to levels found in the unexposed people," growth retardation in some irradiated children, and "pigmented changes at the sites of radiation burns." During the survey the Rongelapese complain of "not getting enough to eat" and the continued T.T. ban on eating coconut crabs. They also attribute certain phenomena to radiation, such as changes to the coconut and pandanus trees, illnesses resulting from the eating of fish with "black spots" on their abdomens, and "inflammation and blistering of the mouth from eating arrowroot flour." The latter, in Conard's opinion, results from improper preparation of the flour and not radioactive contamination.¹⁴⁴

23 Oct 61

**POLICY
WEAPON TESTING**

Officials from the DOI, the Department of State, and the DOD discuss the possible resumption of nuclear testing in the T.T. Because of adverse world opinion and the fact that the Micronesians are now well represented legally, Johnston or Christmas Islands are preferred over Bikini or Enewetak, and it is agreed that testing at Enewetak should only be considered if other feasible test sites cannot be found.¹⁴⁵

3 Nov 61

**POLICY
WEAPON TESTING**

Noting that under the trusteeship agreement with the UN the U. S. is "directly responsible for the well-being of the people of Micronesia," Acting Secretary of the Interior James K. Carr, advises Glenn T. Seaborg, chairman of the AEC, "against any further testing in the T.T. of the Pacific Islands."¹⁴⁶

15 Nov 61

**CONTRACTOR
RADIATION**

Basing his judgment on studies of Japanese atomic bombing survivors and Rongelap natives, Clinton S. Maupin, Reynolds Electrical and Engineering Company, (REECo), radiological safety advisor, states, "An exposure limit of 3 R per quarter and 5 R per year is obviously an extremely safe limit."¹⁴⁷

27 Nov 61

POLICY

Seaborg states that the AEC is "exploring other means and locations in the hope that ... it would not be necessary to utilize Islands in the Trusteeship Territory" should atmospheric testing be resumed.¹⁴⁸

15 Feb 62

**CONTRACTOR
RADIATION**

Results of surveys by the University of Washington Laboratory of Radiation Biology (LRB) at Bikini and 10 other central Pacific islands between 1954 and 1958 reveal that "radioactivity decreased with distance and direction" from the Enewetak test site. Thus, islands within a 130-mile radius of the site exhibited 10 or more times the radioactivity of those surveyed outside this area, and the "major portion of the radioactivity was deposited at or close to the test sites at Enewetak and Bikini Atolls." In addition, islands east of the Bravo test site, i.e., Bikar, Likiep and Rongerik, "contained relatively high amounts of radioactivity." These surveys also showed that zirconium⁹⁵-niobium⁹⁵, ruthenium¹⁰³ and¹⁰⁶, and -rhodium¹⁰³ and¹⁰⁶ were the predominant radioisotopes in most samples; that isotopes such as tungsten¹⁸¹ and¹⁸⁵, zirconium⁶⁵, and cesium¹³⁷ were relatively high in some samples; and that strontium⁹⁰ was found usually in very low amounts.¹⁴⁹

7 May 62

ADMINISTRATION

In transferring to the Secretary of the Interior the responsibility for civil administration of all sections of the T.T., Executive Order (E.O.) 11021 defines this responsibility to include "all executive, legislative, and judicial authority necessary for that administration." The President, however, retains the authority to close areas in the territory for security reasons and to determine how Articles 87 and 88 of the UN Charter and Article 13 of the trusteeship agreement apply to those areas closed. The effective date is 1 July 1962.¹⁵⁰

17 Aug 62

RADIATION

Chairman Anthony Celebrezze of the Federal Radiation Council (FRC) notes that the FRC's radiation protection guides, while not "specifically designed for fallout situations," can be used to determine when "detailed" evaluations and "protective action should be taken." In addition, while the FRC assumes that some slight risk to health exists from levels "even at or below the low levels set by the Guides," it does not believe a major health hazard exists until the fallout measurements "are many times above" these levels.¹⁵¹

Nov 62

RADIATION

A proposed FRC statement "concerning radioactive iodine in fallout" recommends taking protective action when annual radioiodine intake exceeds 365,000 micromicrocuries, or the average thyroid dose equivalent in infants exceeds 5R.¹⁵²

1963

WEAPON TESTING

The Kennedy administration establishes Safeguard "C" upon recommendation of the JCS and the U.S. Senate to accompany the U.S. adherence to the limited test ban treaty prohibiting atmospheric nuclear weapon testing. Safeguard "C," which is one of four test ban treaty safeguards, involves maintenance of the capability to resume atmospheric nuclear testing promptly should the test ban treaty or any of its terms be abrogated by the Soviet Union.¹⁵³

15 Mar 64

**CONTRACTOR
MEDICAL**

A preliminary statement by Conard and Hicking (BNL) concerning their March 1964 survey of Rongelap reveals that the people are "generally in good health with no apparent nutritional deficiencies," and that "no evidence of cancer or leukemia" has been detected. Some exposed children, however, have exhibited a "slight retardation of growth and development," and "thyroid nodules were found in three exposed girls." These nodules are being evaluated further.¹⁵⁴

1 May 64

WEAPON TESTING

Alvin R. Leudecke, the AEC general manager, tells Ataji L. Balos of the Marshall Islands that, as a result of the U.S. signing of the limited nuclear test ban treaty in August 1963, "it is clear that the United States has no present intention of conducting any tests of nuclear weapons in the Marshall Islands."¹⁵⁵

31 Jul 64

RADIATION

Upon the recommendations of the FRC, President Lyndon B. Johnson approves the adoption of the Protective Action Guide (PAG), or the "projected absorbed dose to individuals in the general population which warrants protective action following a contaminating event," and the use of this guide by federal agencies. The PAG for iodine¹³¹ is set at "30 rads to the thyroid."¹⁵⁶

22 Aug 64

**ADMINISTRATION
CLAIMS
LEGAL RESPONSIBILITY**

P.L. 88-485 appropriates \$950,000 to "compensate inhabitants in the Rongelap Atoll ... for radiation exposures sustained ... as a result of" Castle Bravo. Payments are to be disbursed by the Secretary of the Interior and considered in "full settlement and discharge of all claims against" the U.S.¹⁵⁷

P.L. 88-487 gives the Secretary of the Interior the power to extend any federal program administered by any "department, corporation, or other agency of the executive branch of the Government" to the T.T.¹⁵⁸

19 Oct 64

MEDICAL

Of the three girls diagnosed with thyroid tumors in March 1964 two have had thyroidectomies and have been diagnosed with adenocarcinoma. The third is soon to have a thyroidectomy. Estimated doses to the thyroids are "100 to 175 rads external gamma plus 100 to 150 rads from absorbed radioiodine." Pending documented data, however, the AEC considers these findings "tentative." While the two girls' prognoses are uncertain, the surgeons feel "they may have removed all the neoplastic tissue."¹⁵⁹

Mar 65

**CONTRACTOR
MEDICAL**

Conard's survey reveals that while the "health of both the exposed and unexposed people ... is generally good, and ... nutrition ... satisfactory," three more cases of thyroid nodules are discovered: two boys and a 41-year-old woman. These people are being brought to BNL for "further examination and treatment." To date, no malignancies that can be "related to radiation" and no cases of leukemia have surfaced. In addition, the people's "blood elements" have returned to normal; they "appear well adjusted to life on their home island and exhibit no untoward psychological reactions to their experience."¹⁶⁰

May 65

**CONTRACTOR
RADIATION**

A study of gamma dose rates at Rongelap Atoll, done by the LRB between 1954 and 1963, reveals that the decline of these rates from 1954-1959 "followed the theoretical decay of mixed fission products from U²³⁵ calculated by Miller and Loeb." From 1959-1963, the reduction was "approximately half the predicted levels," but this is attributed to the "downward movement of the long-lived gamma-emitter Cs¹³⁷ in the soil."¹⁶¹

July 65

**ADMINISTRATION
CONTRACTOR
MEDICAL**

All three thyroid cases found during the March 1965 survey are successfully operated on at the Lahey Clinic in Boston. The tumors in the two boys are found to be benign. The woman, however, "has carcinoma of the thyroid gland with some metastases to local structures." She is given a "sub-total thyroidectomy" followed by 30 millicuries of iodine¹³¹. Of note is that the radioiodine dose in the woman is approximately 160 rads, or one-tenth that of the youths. All three people are "returned to their island in satisfactory condition."¹⁶²

The Congress of Micronesia holds its first session.¹⁶³

Aug 65

**CONTRACTOR
MEDICAL
RADIATION**

Conard of BNL finds thyroid nodules in three more adolescents and two adults--bringing the total number of abnormalities to 11 out of the fallout-exposed population of 82.¹⁶⁴

A study of "atoll soil types in relation to the distribution of fallout radionuclides," made from collections done in 1958, 1959, 1961, and 1963, is completed by the LRB. It notes that "different plant soil environments on single islets have a different vertical distribution pattern ... from the same fallout." In addition, "the maximum concentration of fallout radionuclides remains at the soil surface ... except in areas where there has been erosion." Finally, while " Cs^{137} and Sr^{90} are the principal radionuclides entering a cycle within the soil-plant system" and "loss from this system appears to be small," no definite conclusions are drawn from this data.¹⁶⁵

Sep - Dec 65

**CONTRACTOR
MEDICAL**

Conard begins "routine administration of thyroid hormone" to the exposed Rongelap people.¹⁶⁶

1966

**ADMINISTRATION
WEAPON TESTING**

The T.T. legislature requests President Lyndon B. Johnson to create a commission to consider the future status of the T.T.¹⁶⁷

Safeguard "C" focuses on Johnston Atoll under a memorandum of understanding between the Defense Atomic Support Agency (DASA) and the AEC.¹⁶⁸

Feb - Mar 66

**CONTRACTOR
MEDICAL**

Conard identifies five more people with thyroid nodules, bringing the total to 16 of the 69 survivors from the 1954 test. The BNL plans to bring these five new cases to BNL in May for study and treatment. To date only one cancer case has been found, but it is noted that thyroid cancer often grows "in nodular fashion." Forty children from Utirik who had received 14R whole body exposures are also examined, and no nodules are found. In addition, 194 unexposed Marshallese now living on these islands are examined, and three people over 47 years old are found to have nodules.¹⁶⁹

May - Jun 66

**CONTRACTOR
MEDICAL**

The five Marshallese with nodules, discovered in Conard's March 1966 survey, are brought to BNL for evaluation and given subtotal thyroidectomies at New England Deaconess Hospital in Boston. All patients have goiters with nodules and one has Hürtle cells. None exhibit complications, and the group is returned home on 16 June. They will be treated with thyroid hormones.¹⁷⁰

Sep 66

**CONTRACTOR
MEDICAL**

Conard visits the five Marshallese operated on in June 1966 and finds no new medical problems. In addition, "the nodules ... of the remaining patients seem ... controllable by ... thyroid hormone."¹⁷¹

7 Dec 66

RELOCATION

Secretary of the Interior Stewart Udall advises AEC Chairman Seaborg that the DOI is "most anxious to determine whether the Bikini people can now be returned to their homeland" and asks the AEC to review the issue at the "earliest opportunity." Udall's primary concern is that the Bikinians' plight might convince all Micronesians to vote against permanent affiliation with the U.S. in their upcoming plebiscite.¹⁷²

1967

**CONTRACTOR
MEDICAL**

BNL studies conclude, "with increasing probability," that growth retardation in "some of the Rongelap children" has resulted from "hypofunction of the thyroid gland."¹⁷³

24 Jan 67

**CONTRACTOR
RELOCATION**

Officials from the University of Washington, BNL, the DOI, FRC, and the AEC, including the Health and Safety Laboratory (HASL) of NYOO, decide to resurvey Bikini Atoll to determine if its people can be returned there. Ed Held is selected to plan the expedition.¹⁷⁴

Mar 67

**CONTRACTOR
MEDICAL**

Conard diagnoses a new case of nodules in a 17-year-old boy. Of the 19 children under age 10 exposed in 1954, 16 have "developed thyroid pathology," with two displaying hypothyroidism. To date, 11 people have been operated on and all are in "good condition with no further ... abnormalities." Those children who have not been operated on are receiving hormones.¹⁷⁵

Apr - May 67

**RADIATION
RELOCATION**

The AEC undertakes a survey of the Bikini Atoll to determine "levels and components of external gamma radiation fields." Cesium¹³⁷ is found to be the "major contributor ... to the total exposure rate" on Bikini and Eneu Islands, and because of its 30.5 year half-life its "levels on Bikini ... are likely to be the limiting factor in assessing the long term hazards" to repopulating the island.¹⁷⁶

An agricultural survey of Bikini Atoll finds that "while a small part of the atoll was damaged by the nuclear explosions, the atoll as a whole could support coconut groves and subsistence crops." In addition, fish and seabirds could provide an "extended supply of sustenance." It is recommended to begin an "early agricultural rehabilitation program" to prepare the islands for resettlement. Such a program is expected to last four years and cost \$165,000.¹⁷⁷

An anthropological study of the Bikinians and their leaders reveals that most are dissatisfied with Kili and wish to return to Bikini.¹⁷⁸

10 May 67

ADMINISTRATION

P.L. 90-16 appropriates \$25 million for 1967 and \$35 million each for 1968 and 1969 "for the continuance of civil government for the T.T. ... and for other purposes."¹⁷⁹

21 Aug 67

CONGRESSIONAL RESPONSIBILITY

President Johnson submits a proposed joint resolution to Congress for the creation of a commission on the status of the T.T. to develop recommendations to establish self-government in Micronesia.¹⁸⁰

20 Oct 67

RELOCATION

Approximately 300 Enewetak people on Ujelang board a T.T. supply ship and demand to be moved to Majuro. They are angered by the lack of food and poor conditions on Ujelang.¹⁸¹

28 Feb 68

RADIATION

RELOCATION

Officials from the DOI, the National Security Council, the DOD, the DBM and the division of operational safety (DOS) of the AEC, and the T.T. conclude that resettlement of Bikini Atoll would soon result in external exposure levels approximately double that of the "average U. S. population," but similar to that of the residents of the Colorado Plateau. Burying or plowing the soil, however, while "presumably" reducing this exposure to "near average levels," would also reduce the island's fertility. In addition, consumption of local produce would yield cesium¹³⁷ burdens 20 to 50 times that in the U. S. during the 1963-1964 fallout period, but these levels could be reduced to those "deemed acceptable ... in recent years" by limiting local food sources and providing substitutes.¹⁸²

March 68

CONTRACTOR

MEDICAL

Conard discovers two more children with thyroid nodules and decides to bring four more people to BNL. Three of these four have not responded to hormone therapy and the fourth is a 29-year-old woman with an "unidentified tumor in the neck lateral to the gland."¹⁸³

14 March 68

AGREEMENT

Representatives of the Enewetak people and the T.T. high commissioner amend the 19 November 1956 agreement concerning the "use of Enewetak Atoll" to give the high commissioner more discretion in how trust funds are invested.¹⁸⁴

13 May 68

RADIATION

RELOCATION

For the Bikini cleanup Martin B. Biles, director of the AEC/DOS, recommends the removal of contaminated scrap metal from Bikini to make the radioactive scrap unavailable to native collectors.¹⁸⁵

Jun 68

AGREEMENT

The Enewetakese request an increase in their trust fund amount.¹⁸⁶

1 Jun 68

RELOCATION

Representatives of the Enewetak people on Ujelang petition the UN to set a date for their return to Enewetak.¹⁸⁷

12 Jul 68

**MEDICAL
RADIATION
RELOCATION**

The AEC concludes that radiation would not be a "significant" health and safety threat in resettling Bikini and recommends six measures to help reduce exposure. In addition, it recommends that body burdens of cesium¹³⁷ and strontium⁹⁰ be checked after one year and as appropriate thereafter and that efforts be made to ensure an "adequately nutritious diet."¹⁸⁸

25 Jul 68

RELOCATION

The Secretary of the Interior advises President Lyndon B. Johnson that the "initial contingent of returnees might be settled within a year" and the remainder within two. In addition, he urges a public announcement of the decision to resettle Bikinians on Bikini.¹⁸⁹

2 Aug 68

**ADMINISTRATION
RELOCATION**

President Johnson requests that the AEC Chairman, the Secretaries of Defense and Interior, and the high commissioner of the T.T. cooperate in the planning and implementation of a "comprehensive resettlement program for Bikini."¹⁹⁰

12 Aug 68

RELOCATION

President Johnson publicly announces the decision to resettle the Bikinians.¹⁹¹

21 Aug 68

**ADMINISTRATION
LEGAL RESPONSIBILITY
RELOCATION**

Acting AEC Chairman James Ramey offers the DOI the cooperation of the AEC "in the development of a resettlement plan for the Bikini people" and designates Maj. Gen. E. B. Giller to coordinate the AEC role in this effort.¹⁹²

23 Aug - 6 Sep 68

**RADIATION
RELOCATION**

During a visit to the Marshall Islands Tommy F. McCraw, a health physicist of the AEC/DOS tells the Bikinians that the food from the Bikini Atoll lagoon and Eneu Island is safe to eat but that villages will be built only on Bikini and Eneu Islands.¹⁹³

29-31 Aug 68

**ADMINISTRATION
CONTRACTOR
RELOCATION**

Representatives of the Bikini people, members of the T.T. government, the AEC, the DOD, and the DOI estimate a cleanup of five years at a cost of \$2,961,000. Of this amount, it is decided to spend \$100,000 in 1970 and 1971 to renovate the Bikinians' accommodations on Kili and \$80,000 in 1970 and 1971 for renovations on Ujelang. The cleanup will be contracted to H&N Pacific test division, and airlifting will be carried out by Military Air Command (MAC) and the DOD.¹⁹⁴

Sep 68

RELOCATION

The Marshall Islands legislature addresses a resolution to President Johnson on the poor living conditions on Ujelang and requests that a date be set for the return of the Enewetak people to their atoll.¹⁹⁵

21 Oct 68

**ADMINISTRATION
LEGAL RESPONSIBILITY**

P.L. 90-617 increases the funding for civil government in the T. T. from \$35 million to \$40 million for 1969 and \$50 million each for 1970 and 1971. In addition, the Secretary of the Interior is given the power to appropriate funds up to \$10 million "to alleviate suffering and damage resulting from major disasters" there.¹⁹⁶

1969

**CONTRACTOR
RADIATION**

Surveys held in conjunction with the Bikini cleanup reveal no "striking differences between the 1967 and 1969 average values [of radionuclides] for edible" marine animals. In addition, present radionuclide levels and distribution are not expected to change significantly, except for decreases due to physical decay. External radiation measurements and foliage collections are done by the U.S. Public Health Service (USPHS), and the Laboratory of Radiation Ecology (LRE) handles the other sampling and prepares the analyses.¹⁹⁷

Jan 69

RELOCATION

President Johnson transmits a \$1.7 million budget request to Congress for FY 1970 for the cleanup, housing and village center construction, and initiation of the replanting program on Bikini and Eneu Islands.¹⁹⁸

17 Jan 69

**ADMINISTRATION
RADIATION**

The DOD agrees to join the AEC in the cleanup of Bikini Atoll and will provide \$300,000, equal to the AEC contribution, to start this effort.¹⁹⁹

11 Feb 69

ADMINISTRATION

A ten-point agreement between the AEC and the DASA of the DOD apportions the responsibilities involved in the Bikini cleanup. While the DOD will manage the cleanup, "the AEC contractor will provide planning, engineering and

technical staff support and labor for cleanup as well as ... other tasks as determined by the Project Manager." In addition, the AEC will determine that "radiological health and safety requirements are met" at the project's completion. Although the AEC and the DOD will each contribute \$300,000, the AEC's "funding shall not exceed \$300,000 for the entire project and ... shall not be used to pay costs which accrue subsequent to" 30 June 1969.²⁰⁰

18 Feb 69

RELOCATION

The DOD begins its cleanup of the islands of Bikini and Eneu and projects that completion will require six months.²⁰¹

Mar 69

CONTRACTOR

MEDICAL

Conard's survey reveals that "retrospective estimates of the internal dose to the thyroids from absorbed radioiodines add 600 to 1400 rems to the 175 rad external dose." Plans are being made to bring three children and one adult to BNL.²⁰²

20 Mar 69

ADMINISTRATION

The AEC Nevada operations office (NV) designates W. A. Bonnet as its project officer and F. D. Cluff as radiological safety officer for the Bikini cleanup operation. Bonnet will administer "all functions" of the H&N Pacific test division in support of the cleanup effort. Cluff will be responsible for determining whether the DOD's pre-operation plans receive AEC radiological health and safety approval and for advising and assisting the commander of JTF-8 in directing the on-site radiological program. In addition, DOD and DOI funds will be available to the NV through the AEC/DMA.²⁰³

1 May 69

ADMINISTRATION

MEDICAL

The AEC names Conard to conduct the routine medical surveys of the returning Bikinians.²⁰⁴

5 May 69

CONTRACTOR

MEDICAL

Because of the "overwhelming concentration" of thyroid nodules within the group of children exposed during Castle Bravo, Conard rules out familial and environmental factors as possible causes. In addition, he notes that the Rongelap children are "well within ... the latent period for cancer development."²⁰⁵

19 Aug 69

AGREEMENT

The T.T. high commissioner and Enewetak people's representatives amend the 19 November 1956 Agreement in Principle Regarding the Use of Enewetak Atoll to give the high commissioner of the T.T. the power to pay out "said amounts from the principal of the trust estate" to beneficiaries.²⁰⁶

26 Aug - 21 Sep 69

**CONTRACTOR
MEDICAL**

Five Marshallese are brought to BNL for evaluation and surgery at Cleveland Metropolitan General Hospital. Three of the cases are diagnosed as malignant. The case of a 34-year-old woman from Utirik is not attributed to radiation exposure, however, because of the "low dose received and the lack of thyroid abnormalities ... in Utirik children." Dr. Ezra Riklon, who accompanies the Marshallese, will return to the Marshall Islands and supervise the hormone treatments of the people.²⁰⁷

13 Oct 69

RELOCATION

The AEC certifies that the Bikini cleanup project has been "satisfactorily completed."²⁰⁸

14 Dec 69

LEGAL RESPONSIBILITY

The Bikinians petition the T.T. high commissioner for their immediate return to Bikini and \$100,000 in further compensation for damages to their atoll and the discomforts they suffered from relocation.²⁰⁹

Mar 70

**CONTRACTOR
MEDICAL**

Conard of BNL conducts annual medical examinations of the Marshallese and finds no new serious cases of thyroid disease. Seventeen of the 19 children exposed on Rongelap have thyroid dysfunction as do a significant number of adults.²¹⁰

28-29 Apr 70

**PLUTONIUM
RADIATION
RELOCATION**

At a series of meetings with T.T. officials at Saipan, AEC representatives Cluff of the NV and Martin Biles of the AEC/DOS discuss the need for additional surveys of Bikini because of concern about plutonium in the soil, the status of agricultural and construction programs, and possible techniques for reducing expected exposure levels. T.T. officials decide to delay resettlement until 1973 when people would be self-supporting and agree to wishes of the Bikini people that all houses be built on Bikini instead of Eneu but promise that no houses will be constructed in the interior of Bikini Island.²¹¹

7-8 May 70

MEDICAL

The AEC/ACBM recommends the development of mechanisms for paying the Utirik population as research subjects in order to assure their continued cooperation in the investigation of the Marshallese exposed to fallout in 1954. Because of the low dose of radiation received by the Utirik people, this payment must not be viewed as compensation for radiation exposure. The ACBM notes the necessity for continued medical care of the Rongelap people. The committee considers the assignment of a paramedical person on a continuing basis to detect and manage the late effects of the radiation exposure and to ensure the validity of the continuing investigation of medical findings.²¹²

May - Jun 70

**ADMINISTRATION
CONTRACTOR
PLUTONIUM
RADIATION**

A follow-up radiological survey of the major islands in the Bikini Atoll is conducted by representatives of the AEC, the University of Washington, and the USPHS. The primary mission is soil and air particulate sampling. Other tasks include collection of cistern water and other environmental samples and monitoring of scrap metal and potential locations of sand and coral aggregate used to make concrete for housing. Members of the survey team include three people from the University of Washington, three from the Southwestern Radiological Health Laboratory, two from the AEC NV and one from the AEC/DOS. This is the first collection of air samples on Bikini. Levels of plutonium in the air are two orders of magnitude below FRC guides.²¹³

12 Jul 70

RADIATION

In a letter to Peter T. Coleman of the T.T., AEC/DOS recommends that clean coral aggregate from a supply stored on Aerokojul and Aerokoj Islands in southern Bikini Atoll complex be used for house construction on Bikini Atoll.²¹⁴

1970

**AGREEMENT
RADIATION**

The AEC promises \$16,000 in "inconvenience money" to the people of Utirik.²¹⁵

Urine bioassay sampling is conducted from people coming and going from Bikini Island. Pooled urine is analyzed for strontium⁹⁰, cesium¹³⁷ and plutonium^{239, 216}

1971

**CLAIMS
PLUTONIUM
RADIATION**

Urine bioassay sampling is conducted from people coming and going from Bikini Island. Pooled urine is analyzed for strontium⁹⁰, cesium¹³⁷, plutonium²³⁹ and plutonium^{240, 217}

Micronesian Legal Services Corporation (MLSC) is established in the T.T. and funded by the Office of Economic Opportunity.²¹⁸

17 Jun 71

**RADIATION
RELOCATION**

In response to an inquiry by T.T. High Commissioner Edward E. Johnston regarding the radiation safety of the Peter-Oboe (Aerokojul-Aerokoj) complex, Martin Biles, AEC/DOS, responds that it is safe to plant coconut trees on Aerokoj, Aerokojul and Bikdrin but not on Eneman. AEC/DOS recommends using the causeway joining Lele to Bikdrin as the dividing line between the area that may be planted and that which should be restricted. There are no restrictions on digging foundations on Bikini Island, but AEC/DOS recommends that water from wells on Bikini Island should be analyzed to insure its potability. AEC/DOS urges that residents not rely on groundwater as a source of drinking water.²¹⁹

Jul 71

RADIATION

The NV and Environmental Protection Agency (EPA) representatives participate with personnel of the Air Force Pacific Cratering Experiment (PACE) program in a preliminary site selection visit to Enewetak. They identify Runit Island as a significant and potentially serious rad-hazard area after finding there the highest measurements of gamma, plutonium, and scrap metal of all locations surveyed.²²⁰

22 Jul 71

ADMINISTRATION

Maj. Gen. E. B. Giller, assistant general manager for military application of the AEC, directs Robert E. Miller, NV manager, not to use weapon program funds for Bikini and Enewetak radiological surveys and cleanup activities.²²¹

FY 1972 - FY 1982

ADMINISTRATION

The Pacific Area Support Office (PASO) reports that during this decade its activities in the Marshall Islands included ship support; providing DOE representation on sensitive missions; administration of the University of Hawaii contract; and general and logistical support for the biomedical and environmental programs.²²²

25 Jan 72

MEDICAL

In response to ejection from the T.T. of a Japanese medical team which he had invited to the Marshall Islands, Micronesian Representative Ataji Balos speaks out in the Congress of Micronesia charging that the U.S. knowingly exposed the natives of Rongelap and Utirik to the 1954 fallout so the U.S. could develop medical capabilities to treat people who might be exposed to radiation during a war. He alleges that the Marshallese were chosen because they are remote brown-skinned natives and that they have been receiving questionable medical treatment, aimed more at collecting medical data than at restoring the health of the people. He introduces a bill calling for the establishment of a special congressional committee to look into the plight of these people.²²³

Mar 1972

**CONTRACTOR
MEDICAL**

Accusing the BNL medical team of deception and of using them as guinea pigs, the Rongelapese boycott the BNL medical services, according to an investigation by Dr. Henry Kohn. Thus, the medical survey team led by Conard is unable to carry out its annual examination of the Marshallese.²²⁴

16 Mar 72

**RADIATION
RELOCATION**

Tommy McCraw, Martin Biles, Roger Ray, and representatives from the Defense Nuclear Agency (DNA) meet with Ambassador Franklin Williams, the President's representative for Micronesian status negotiations, and his staff to discuss the rehabilitation of Enewetak Atoll. Williams states that he would like to announce at the 2 April session of the Micronesian status negotiations that Enewetak Atoll is being returned to its former residents. The ambassador is worried about confrontation with the Enewetak people. AEC representatives discuss the differences between the

situation at Enewetak and that at Bikini and the need for a radiological survey of Enewetak.²²⁵

26 Mar 72

LEGAL RESPONSIBILITY

Micronesian P.L. 4C-33 creates from the Micronesian legislature a Special Joint Committee Concerning Rongelap and Utirik. The committee is responsible for investigating the effects of radiation on the people of Rongelap and Utirik Atolls, and is charged with securing medical assistance and compensation for those injured from radiation exposure. Olympio T. Borja, Marianas senator, is chairman. Other committee members are Representatives Hans Williander of Truk and Timothy Olkeriil of Palau.²²⁶

18 Apr 72

AGREEMENT

High Commissioner Edward E. Johnston and U.S. Ambassador Franklin Haydn Williams, of the DOI, announce that the U.S. government is prepared to release Enewetak Atoll to the T.T. at the end of 1973. The announcement acknowledges the necessity of survey, cleanup, and rehabilitation procedures such as those done on Bikini. Parry, Japtan, and Aniyaanii are to receive first priority in cleanup and rehabilitation. The DOD, with technical support of the AEC, is to conduct the cleanup. The U.S. plans research and development tests on the atoll that should be completed by the end of 1973.²²⁷

May 72

CONTRACTOR RADIATION

A survey is conducted on Bikini Atoll following planting of coconuts on Bikini and Eneu Islands and the start of house construction on Bikini. The survey covers air, plant, soil, and animal sampling and external radiation measurements. Radionuclide levels are found to be decreasing slowly. The team is led by the University of Washington, with participation by scientists from the EPA, the Western Environmental Research Laboratory (WERL), and the AEC.²²⁸

10-24 May 72

RADIATION

A survey team of AEC, DOD, and EPA personnel visits Enewetak Atoll to determine the nature and extent of the necessary cleanup and a cost estimate. The team finds a significant radiological hazard existing on six islands: Bogallus, Engebi, Aomon, Biihiri, Runit, and Parry. Results of the survey lead to a cost estimate of as much as \$40 million and a conclusion that Runit Island and perhaps Engebi may be so contaminated that it may not be "economically feasible to make them safe for human use."²²⁹

11-17 May 72

PLUTONIUM RADIATION

An AEC team conducts a preliminary radiological survey and locates surface plutonium contamination on Runit Island. This includes plutonium-bearing sand layer outcropping on the ocean side of the mid-island area, plutonium fragments and grains on the island surface, and contaminated scrap metal throughout the island.²³⁰

17 May 72

**CONTRACTOR
RADIATION**

T.T. officials, escorting a group of Enewetakese council members and their lawyers, and Roger Ray, NV assistant manager for operations, arrive on Enewetak. The AEC survey team advises Ray on the possibility of high alpha contamination on Runit Island, and Ray briefs DNA PACE personnel and workers just arriving from Scripps Institute of Oceanography (SIO) on preliminary survey findings. The Scripps people leave, and the PACE people remain to continue preparations for high explosive cratering experiments.²³¹

20 May 72

**ADMINISTRATION
RADIATION
RELOCATION**

At the close-out meeting for the Marshallese visit to Enewetak the T.T. officials and Enewetakese leaders want an early return of Enewetakese to Enewetak. The Enewetakese wish to draw up specifications for rehabilitation and express dissatisfaction with the continued use of their land. Ray agrees to convey to appropriate authorities the need for central coordination of all future actions relating to Enewetak and the necessity of keeping the Marshallese and T.T. administration advised of U.S. actions and intentions. NV manager Robert E. Miller requests "the establishment at the Washington level of a single manager for all future United States actions pertaining to Eniwetok".²³²

Ray returns to Kwajalein and recommends to Air Force authorities a quarantine of Runit Island to prevent dispersion of contamination because the road between the dock and the PACE work area passes through a highly contaminated area.²³³

24 May 72

RADIATION

Runit Island is quarantined and the Air Force orders a cessation of all operations there. Only minimum essential personnel are authorized access to the island until NV issues recommendations.²³⁴

26 Jul - 2 Aug 72

RADIATION

A joint AEC-DOD team visits Enewetak Atoll to survey those portions of Runit Island to be used in a PACE cratering experiment to determine necessary precautions for conducting the planned PACE experiment or for relocating the experiment. The eight-member surveillance team consists of two people from Air Force Weapons Laboratory, three from the DNA, two from the AEC, and one from the WERL.²³⁵

1 Aug 72

ADMINISTRATION

The AEC assigns the assistant general manager for military application (AGMMA) "the overall authority and responsibility within the AEC for coordinating interagency and intra-agency matters related to the rehabilitation of the Eniwetok Atoll." Later in August the AGMMA assigns the NV responsibility for all AEC field operations associated with the rehabilitation.²³⁶

17 Aug 72

**ADMINISTRATION
RADIATION**

AEC and DNA representatives meet to review available information and develop recommendations to assist in the planning for the cleanup of Enewetak. They conclude that actions required to return Enewetak to the T.T. fall into three phases: planning, cleanup, and rehabilitation. They decide that cleanup can be accomplished without interfering with the PACE test series and that the single manager concept will provide the most effective organization for the cleanup.²³⁷

22-23 Aug 72

RELOCATION

DOI officials meet with Ujelang leaders and representatives from MLSC at T.T. headquarters about the return of the people of Enewetak. They discuss the goal of returning people to Japtan "as soon as practicable" and the minimum requirements for moving people there.²³⁸

Sep 1972

**AGREEMENT
MEDICAL**

The medical survey team is reactivated to resume examinations of the Marshallese. This reactivation follows an agreement with the Special Investigating Committee of the Micronesian Congress to send a team of independent, international physician-observers to join the medical survey team and report to the committee on the value of the medical survey and the health status of the exposed Marshallese. The Rongelapese accept the BNL medical services after an international committee issues "a relatively favorable report," according to Kohn.²³⁹

7 Sep 72

**ADMINISTRATION
RADIATION**

As a result of an interagency meeting on Enewetak, the AEC will fund the precleanup radiological survey; the DOD, the radiological and nonradiological cleanup; and the DOI the rehabilitation costs. The manager, NV, is assigned operational responsibility for the survey. The DNA will provide logistical support.²⁴⁰

2 Oct 72

**RADIATION
RELOCATION**

After the AEC announces that only a limited number of Bikini coconut crabs can be eaten because they are radioactive, the Kili council votes against returning the entire community to Bikini but allows those who wish to return. Three Bikini families move back to Bikini with approximately 50 Marshallese construction and maintenance workers.²⁴¹

4 Oct 72

**ADMINISTRATION
CONTRACTOR**

According to the planning and operations directive for the 1972 Enewetak radiological survey, the AEC/DNA is to coordinate AEC policy relating to the survey and provide overall Washington direction; NV is the primary organization to implement the survey; the division of biology and environmental research (DBER) is to assess "the radiological implications of sources of direct radiation and food chain-

to-man paths." The AEC/DOS is responsible for similar work relating to cleanup operations. The Lawrence Livermore Laboratory (LLL), LASL, HASL, and the University of Washington are to be involved in the evaluation of data.²⁴²

5 Oct 72

LEGAL RESPONSIBILITY

As a result of litigation, *People of Enewetak vs. Laird (Project PACE)*, the judge places an injunction on PACE activities. The AEC is not a defendant, and radiological studies are not affected. The Air Force general counsel recommends advising the AEC of the injunction and urging the AEC to use methods in cleanup studies not prohibited in the injunction.²⁴³

12 Oct 72

**CONTRACTOR
RADIATION**

The AEC Enewetak radiological survey begins. The LLL radiochemistry division leader is technical director to the manager, NV. NV provides radiological support to H&N for the DNA engineering survey of Enewetak. Within the first week activities are suspended because of Typhoon Olga.²⁴⁴

8 Nov 72

RADIATION

Survey activities resume at Enewetak Atoll.²⁴⁵

14 Nov 72

MEDICAL

Two Marshallese females, 19 and 29 years old, undergo successful surgery to remove thyroid nodules at Cleveland Metropolitan General Hospital.²⁴⁶

15 Nov 72

MEDICAL

A 19-year-old male, Leko Anjain, exposed to fallout from the 1954 Bikini weapons test, dies from cancer at the National Institutes of Health (NIH). NIH confirms the diagnosis of leukemia discovered during the 1972 medical examination.²⁴⁷

16-17 Nov 72

**CONTRACTOR
RADIATION**

Representatives from DOI, DNA, AEC, and H & N meet with T.T. officials on Kwajalein to allow representatives of the Enewetak people to ask questions about the surveys being conducted on Enewetak. The U.S. government representatives assure Congressman Balos and Chips Barry, an attorney, that the AEC radiological surveys have nothing to do with the PACE program.²⁴⁸

30 Nov 72

ADMINISTRATION

The Joint Chiefs of Staff designate the director, DNA, as the DOD project manager for cleanup of Enewetak.²⁴⁹

Late 1972

**MEDICAL
RADIATION**

According to urine bioassays from people coming to and going from Bikini Island, cesium¹³⁷ concentration shows an increase by a factor of four over 1970 results and strontium⁹⁰ levels increase by a factor of two.

The T.T. begins a program of sending monthly shipments of food to Bikini.²⁵⁰

A Rongelap male dies of carcinoma of the stomach. This may be related to radiation exposure, according to BNL.

A physician from BNL is stationed in the Marshall Islands as a resident physician. His responsibilities include monitoring the thyroid treatment program; visiting Rongelap, Utirik, and Bikini Atolls every three to four months; and assisting the T.T. medical services with the care of Rongelap and Utirik patients at the hospitals at Ebeye and Majuro.²⁵¹

1973

**ADMINISTRATION
CONTRACTOR
RADIATION**

A Radiological Assessment Review Group (RARG), organized by the director, DBER, reviews the adequacy and sufficiency of the Enewetak radiological survey data in order to oversee evaluations of the survey. Members are not directly involved in the actual survey. These members are N. F. Barr, DBER, Chair; T. F. McCraw, AEC/DOS; B. Shleien, PHS; C. L. Weaver, EPA; R. B. Leachman, DOD; P. F. Gustafson, ANL; C. R. Richmond, LASL; and A. H. Seymour, University of Washington.²⁵²

Urine bioassays from people coming and going from Bikini Island show cesium¹³⁷ in urine higher than in 1970 by a factor of about ten and an increase in strontium⁹⁰ by a factor of four. This information is provided as testimony during House Appropriations Committee hearings in spring 1978. It is taken from a BNL report 50424, September 1975.²⁵³

14 Feb 73

RADIATION

Field operations of the Enewetak radiological survey are completed.²⁵⁴

21 Mar - 12 Apr 73

**CONTRACTOR
MEDICAL**

Conard of BNL and his team conduct the annual medical survey. No new cases of leukemia or blood disorders are discovered. New thyroid abnormalities are detected, including three which might be related to the 1954 fallout and three that are probably unrelated. The thyroid nodules in all but one case are scheduled to be removed surgically in Cleveland within several weeks.²⁵⁵

11 Apr 73

LEGAL RESPONSIBILITY

Micronesian P.L. 5-52 provides for certain care and benefits to the people of Rongelap and Utirik Atolls exposed to the 1 March 1954 H-bomb test fallout; "for care and benefits to certain other people from Rongelap and Utirik, and for other purposes." The high commissioner of the T.T. is directed to "seek an executive agreement with the Atomic Energy Commission whereby expenses incurred under the provisions of this act will be defrayed ... by the Atomic Energy Commission." In

response, the DOI consults with the AEC/DBER. The AEC responds with a willingness to fund "research-related services" as a part of its authorized responsibility.²⁵⁶

16 Apr 73

RELOCATION

The people of Enewetak adopt a resolution that the DOD be the sole agency in charge of the cleanup and rehabilitation of their atoll in the belief that they would be most effective in ensuring an early and safe return of the Enewetakese to their atoll. The DOD responds that it is necessary and most effective to functionally assign responsibilities for the total rehabilitation process between departments.²⁵⁷

3 May 73

ADMINISTRATION

Gen. Frank A. Camm of AEC headquarters assigns the office of Mahlon E. Gates, NV, the responsibility for a study to define the probable lifestyle patterns of the Enewetak people subsequent to their return to Enewetak. This study will be used in conjunction with the radiological report to analyze dose assessment and develop recommendations for cleanup.²⁵⁸

31 May 73

CONTRACTOR RELOCATION

Representatives of the Enewetak people, Theodore Mitchell and Hemos Jack of the Micronesian Legal Services Corporation and Smith Gideon, magistrate of Ujelang Atoll, meet with representatives of NV, the LLL, and the University of Washington. They approve NV plans for a visit to Ujelang in June to study probable lifestyle patterns of resettled Enewetakese and express interest in an early radiological certification and some resettlement of Japtan. NV provides data on external exposure rates but stresses an inability to judge constraints on a return to Japtan pending analysis of survey results on food-chain pathways.²⁵⁹

Jul 1973

ADMINISTRATION CONTRACTOR

An AEC task group is established by the director, AEC/DOS, to review survey results and prepare cleanup and rehabilitation recommendations for consideration by the AEC. Members include T. McCraw (AEC/DOS), W. Nervik (LLL), D. Wilson (LLL), and W. Schroebel (DBER). They work with staffs from NV and LLL involved with the survey, as well as AEC staff from DMA; DBER; division of waste management and transportation (DWMT); division of radiological safety (DRS); representatives from the DOD, the DOI, and the EPA; and advisors from T.T. and BNL.²⁶⁰

20 Aug 73

RADIATION

Representatives of the T.T., MLSC, DNA, AEC, and H&N meet on Majuro to inform the district administrator on the progress of the survey efforts and on the results of a field trip to Ujelang. AEC representatives report that the Enewetak people were helpful in providing information on living patterns and dietary considerations which will be incorporated into the radiological survey report.²⁶¹

18 Oct 73

ADMINISTRATION

The director, Office of Management and Budget (OMB) provides guidance to the AEC, the DOD, and the DOI on inclusion of funds in the FY 1975 budget for cleanup and rehabilitation of Enewetak. The FY 1975 budget should "show continuing Administration commitment to the clean-up and rehabilitation of the Atoll, but consistent with current uncertainty regarding the final detailed clean-up and rehabilitation plan." Agency responsibilities identified are: the DOD for maintaining ongoing facilities and operations and cleanup at Enewetak; the DOI for rehabilitation; and the AEC for radiological monitoring and survey. Subsequently AGMMA calls for a clarification of terminology between "radiological control," a DNA responsibility, and "radiological monitoring," an AEC responsibility.²⁶²

1974-1975

**CONTRACTOR
RADIATION**

The AEC/DBER sponsors a research program conducted by LLL and the University of Hawaii to study the groundwater on several islets in the Enewetak Atoll in order to characterize the ground water for possible use by returning Marshallese and to investigate the hydrology and recycling of radionuclides in an atoll environment. Drilling for wells takes place in mid-1974, and sampling programs are carried out in 1974 and 1975.²⁶³

1 Jan 74

ADMINISTRATION

Host manager responsibility for Enewetak Auxiliary Airfield is transferred from the Department of the Air Force to the DNA.²⁶⁴

9 Jan 74

ADMINISTRATION

At the request of MLSC, the signing of documents to transfer control of Enewetak Atoll from the DOD to the T.T. is delayed to allow representatives of the people of Enewetak to review the document.²⁶⁵

27 Feb 74

CONGRESSIONAL RELATIONSHIP

Senate Joint Resolution No. 90, H.D. 1, is adopted by the Fifth Congress of Micronesia, Second Regular Session "Requesting United States Congressional funding of the Bikini Rehabilitation Projects be separate and distinct from annual United States Congress Grant Funds for the T.T. of the Pacific Islands".²⁶⁶

28 Feb 74

**AGREEMENT
CLAIMS**

The Special Joint Committee Concerning Rongelap and Utiirik Atolls reports to the Fifth Congress of Micronesia on compensation for the people of Rongelap and Utiirik. According to the report, the AEC complied with the committee's recommendation to send an AEC representative on the 1974 medical survey. The AEC also agreed to another committee recommendation to supply money for Micronesian P.L 5-52 by allocating \$20,000 for the first year. The committee also wanted the AEC to pay the "inconvenience money" promised in 1970, and the AEC indicated that it "is ready to provide \$18,212 for the 157 people of Utiirik who were exposed....There will be no release of liability for the AEC or the U.S. Government if

the people take this money." The AEC has also agreed to explain radiation to the people of Bikini and Enewetak before they are returned to their islands.²⁶⁷

Apr 74

**ADMINISTRATION
CONTRACTOR
MEDICAL
PLUTONIUM
RADIATION**

Roger Ray, assistant manager of NV in charge of the Enewetak radiological survey, and Walter Nervik of LLL, technical director of the survey, travel to the Marshall Islands to explain the technical information contained in the recently published Enewetak Radiological Survey (NVO-140) to representatives of the T.T. and the Enewetak people.²⁶⁸

Personnel from the LRE and BNL collect samples on Utirik, Rongelap and Bikini Atolls as part of the DOS portion of the LRE Pacific Radioecology Program to determine the kinds and amounts of radionuclides distributed in the foods, plants, animals, and soil of the central Pacific and supply them to the agencies involved in calculating dose assessment for people living in the central Pacific.²⁶⁹

The first in vivo counting of cesium¹³⁷ is taken for Bikini residents. Cesium¹³⁷ values are about the same as 1973. Strontium⁹⁰ levels are down to about 1970 levels. Plutonium²³⁹ and plutonium²⁴⁰ levels are higher by a factor of five.²⁷⁰

May 74

**CLAIMS
RELOCATION**

A group of Bikini people refuse to return to the atoll on 25 May 1974 until they receive appropriate compensation for the past 25 years.²⁷¹

14 May 74

RADIATION

John W. McEnery, DNA deputy director of operations and administration, disagrees with the AEC task group recommendations for cleanup and rehabilitation of Enewetak. He regards the recommendations as "an unduly restrictive application of criteria that are largely arbitrary and probably inapplicable" and "not in accord with the wishes and probable needs of the Enewetak people." McEnery states, "The radiological and other safety conditions upon their return should apply to those local conditions, not necessarily those of the U.S. population with its different radiological conditions and its greater uncertainties of exposure."²⁷²

3 Jun 74

ADMINISTRATION

James Liverman, the AEC assistant general manager for biomedical and environmental research and safety programs, proposes to Mahlon E. Gates, director, NV, that NV be assigned responsibility for programmatic coordination of the AEC's activities in the Marshall Islands.²⁷³

19 Jun 74

**PLUTONIUM
RADIATION**

The AEC task group issues recommendations for cleanup and rehabilitation of Enewetak Atoll. The radiation criteria guides for cleanup actions include: whole body and bone marrow-0.25 rem/yr, thyroid-0.75 rem/yr; bone-0.75 rem/yr; gonads-4 rem

in 30 yrs. The group concludes that guidance for cleanup of plutonium-contaminated soil can only be developed on a case-by-case basis. The group's guidance for plutonium²³⁹ cleanup operations at Enewetak is: less than 40 pCi/gm of soil-corrective action not required; 40 to 400 pCi/gm of soil-corrective action determined on a case-by-case basis; greater than 400 pCi/gm of soil-corrective action required.²⁷⁴

25 Jun 74

CLAIMS

The AEC pays the T.T. \$18,212 to be dispersed in equal payments of \$116 to each exposed inhabitant of Rongelap or their heirs.²⁷⁵

Jul 74

ADMINISTRATION RELOCATION

The DOI supports the request by people of Enewetak that an advance party of about 50 people from Ujelang be allowed to return to Japtan Island and requests that the AEC address the safety aspects of the proposed return and establish guidelines and restrictions to ensure the safety of the returnees. Liverman responds that the AEC would not recommend the return of people prior to cleanup and certification because of radiological hazards in other parts of the atoll but that it would not object to a return before cleanup if the T.T. can assure certain restrictive measures. He points out that the request is "an extension of what we consider to be the AEC's role in the original interagency effort, namely to prepare recommendations on whether the radiological conditions were such that a safe return could be made and on radiological criteria for cleanup" and recommends that the DOI should obtain the views of the DOD and the EPA.²⁷⁶

12 Aug 74

PLUTONIUM RADIATION

The AEC approves SECY 75-81, which contains recommended radiological criteria for Enewetak Atoll. Meeting these criteria necessitates that village sites be confined to the southern islands; that growing of food, except coconuts, be confined to the southern islands, and that the quarantine of Runit be continued until plutonium contamination is removed. The DNA responds that the proposed criteria are too restrictive and that radiation standards for the general public are not appropriate for the small population of Enewetak.²⁷⁷

Sep 74

AGREEMENT RELOCATION

Stanley S. Carpenter, director of territorial affairs of the DOI, announces that 50 people are to be permitted to return to live on Japtan at the earliest possible time, subject to four safety restrictions: no visits are permitted on the northern islands from Runit to Biken; any scrap collection and stockpiling must be approved by the district administrator's representative; visits to Enewetak must be coordinated between the district administrator's representative and the Enewetak base site manager; and visits to other southern islands can be made only with approval of and instructions from the district administrator's representative. Representatives of the T.T., the DOI, and the AEC request that the Enewetak Council express in writing that they understand and will observe these restrictions, which they do by adopting an ordinance.²⁷⁸

2 Sep 74

**ADMINISTRATION
RADIATION
RELOCATION**

Representatives of the DNA, the DOI, and the AEC meet with the Enewetak Council, their advisors, members of the Congress of Micronesia, and staff of the T.T. at Enewetak on the recommended radiological criteria. The DNA submits a Draft Environmental Impact Statement containing the AEC recommendation as the preferred option. The recommended alternative calls for removing the most seriously contaminated soil and radioactive, hazardous, or obstructive debris and entombing it in one or two craters on Runit.²⁷⁹

27 Sep 74

ADMINISTRATION

Commenting upon the proposed NV role as programmatic coordinator, L. Joe Deal, assistant director for health protection, AEC/DOS, responds, "The activities in the Pacific need better inhouse and interagency coordination. Since programmatic direction for research is maintained at Headquarters, the logical place to proceed with this coordination is here."²⁸⁰

11 Oct 74

ADMINISTRATION

President Gerald Ford creates the Energy Research and Development Administration (ERDA) by signing the Energy Reorganization Act, P.L. 93-438.

Nov - Dec 74

**CONTRACTOR
RADIATION**

LRE and BNL staff collect samples from Utirik, Rongerik, Rongelap, Ailinginae, and Bikini for the AEC/DOS portion of the Pacific Radioecological Program.²⁸¹

8 Nov 74

**ADMINISTRATION
RADIATION
RELOCATION**

The AEC/DOS seeks a closer relationship with the DOI on Bikini resettlement. Martin B. Biles, AEC/DOS, is concerned that recommendations on Bikini rehabilitations are not being followed strictly, including the use of aggregate from Bikini for house construction. Biles recommends that any additional housing be constructed on Eneu, or at least that any further construction on Bikini be deferred until radiological consequences are evaluated. As for Enewetak, because of current funding difficulties Biles suggests that the DOI re-evaluate the advisability of an early return to Japtan.²⁸²

Dec 74

RELOCATION

A field trip by AEC personnel to Ujelang to discuss the Enewetak master plan with the Enewetak people results in the latter's acceptance of the AEC recommendation that Enjebi Island should not be resettled along with islands in the south because it needs further study. According to the master plan, Enewetak Atoll and Medren Islands will be the major residential islands. Following the trip the AEC staff reworks the master plan.²⁸³

4 Dec 74

RADIATION

Carpenter of the DOI denies the rumor that coral other than that from the Aerokojul and Aerokoj Islands in southern Bikini Atoll is being used in building construction. The DOI position is that the AEC must be completely involved with the Bikini project; he urges that the AEC undertake a comprehensive radiological assessment of Bikini, such as that done on Enewetak, as soon as possible so that the DOI/T.T. rehabilitation program can proceed with the necessary radiological data.²⁸⁴

7 Dec 74

RELOCATION

The Enewetak Council adopts a resolution requesting that Stanley Carpenter, director of the DOI office of territorial affairs, grant the people of Enewetak title and ownership of Ujelang Atoll.²⁸⁵

13-15 Jan 75

ADMINISTRATION

CONTRACTOR

RELOCATION

At an H&N Bikini-Enewetak conference a Bikini advisory group is established to coordinate activities of Bikini rehabilitation with members from the DOI (Brown), T.T. (Coleman), the Marshall Islands (de Brum), the AEC (Biles, Ray for logistics, McCraw for radiological concerns), and H&N (Gilmore). The ERDA is to prepare a radiological evaluation/assessment from the draft Bikini Master Plan, as well as a plan for an aerial survey of Bikini Atoll and a backup plan for a ground survey in case necessary support for the aerial survey cannot be obtained.²⁸⁶

17 Jan 75

ADMINISTRATION

Gates, manager, NV, recommends "that NV be assigned responsibility for the coordination of all the Commission's (ERDA's) activities in the Marshall Islands and that this assignment be made known to Headquarters staff as well as to concerned field offices and contractors" and that arrangements be made to assure that NV has the "opportunity to review and comment upon all proposals to conduct research, studies and related activities in the Marshalls".²⁸⁷

19 Jan 75

ADMINISTRATION

The ERDA is activated.

20 Jan 75

ADMINISTRATION

The role of NV in the Marshall Islands program is decided at a meeting in the office of James L. Liverman, ERDA acting deputy assistant administrator for environment and safety. NV will provide overall management of logistics support, coordination, and scheduling of Pacific program-related activities; serve as liaison among participants; review, evaluate, and comment on plans, policy matters, reports and publications relating to activities in the Pacific; and recommend programmatic changes and levels of effort to headquarters. Headquarters will make final policy and program decisions.²⁸⁸

6 Feb 75

ADMINISTRATION

With the completion of the 1974 Enewetak radiological survey and the beginning of the clean-up phase, Gen. Ernest Graves, the ERDA director of military application, recommends:

I believe it now appropriate and timely to relieve DMA of its Enewetak responsibilities. The Assistant Administrator for Environment and Safety concurs in this view and will assume the lead within the ERDA for all Enewetak matters.²⁸⁹

19 Feb 75

ADMINISTRATION

L. Joe Deal, assistant director for health protection, ERDA/DOS, does not concur with Graves's proposal for a transfer of programmatic responsibility for Enewetak by saying,

As long as DOD is active in the cleanup program, we believe DMA should continue its role. Until the cleanup is completed, we don't know what problems may arise that would need the assistance of the DOD weapons test laboratories and contractors.²⁹⁰

7 Mar 75

ADMINISTRATION

With input from the ERDA, the DOI requests that the DOD fund logistical support for an additional radiological survey of Bikini Atoll.²⁹¹

Apr 75

**CONTRACTOR
PLUTONIUM
RADIATION**

LRE and BNL staff collect samples from Kwajalein, Bikini, and Wotho Atolls for the DOS portion of the Pacific Radiological Program.²⁹²

Urine bioassays from Bikini show levels of plutonium²³⁹ and plutonium²⁴⁰ higher than 1971 by a factor of ten. According to later information these results are suspect because the samples may have been contaminated. (See 8 Dec 76).²⁹³

9 Apr 75

**CONTRACTOR
MEDICAL**

Nelson Anjain, magistrate of Rongelap village, signs a letter to Conard that states that the people of Rongelap do not want to see him again because he treats them as research subjects rather than as people. The letter adds that the Rongelapese want a doctor to live on the island permanently and no longer want to be under American control. Subsequently, Anjain admits that a member of "friends of Micronesia" wrote the letter.²⁹⁴

May 75

RADIATION

The EPA accepts the DNA's "Environmental Impact Statement on Cleanup, Rehabilitation, Resettlement of Enewetak Atoll, Marshall Islands (April 1975)."²⁹⁵

29 May 75

ADMINISTRATION

The DOD rejects the DOI's request for logistical support for the radiological survey of Bikini Atoll because the DOI does not have the funds to reimburse the support costs.²⁹⁶

Jun 75

**ADMINISTRATION
CONTRACTOR
RADIATION**

The 1975 Bikini Atoll Radiological Survey is conducted by the ERDA and ERDA contractor ground monitors because no funding is available from the DOD for an aerial survey. The purpose is to conduct a survey of external gamma radiation levels on Bikini and Eneu Islands to supplement BNL data. The information will be used to evaluate potential radiation doses that might be received by returning Bikinians, to provide information to advise the DOI on location of Phase II homes, and to conduct a soil, plant, and water sampling program. The NV field survey leader is responsible for management of survey operations. The technical director (LLL) has full authority and responsibility for the technical plan and advises and supports the NV field survey leader. The survey team includes representatives of the AEC/DOS; office of assistant manager for operations (AMO), NV; LLL; the EPA; BNL; and the University of Washington. Analysis of samples is done at The McClellan Laboratory and the LLL. Survey results indicate that external exposure rates on Bikini Island are highly variable.²⁹⁷

13 Jun 75

LEGAL RESPONSIBILITY

P.L. 94-34 authorizes an ex gratia payment of \$3 million to the people of Bikini Atoll "in recognition of the hardship suffered by the people of Bikini due to displacement from their atoll since 1946." This payment is to be placed in a trust fund.²⁹⁸

25 Jun 75

ADMINISTRATION

At an interagency meeting ERDA officials detail a plan to conduct a survey of the atolls affected by nuclear testing at a one-time project cost of \$3 million. The ERDA, responsible for the technical aspects of the survey, is committed to absorb approximately one-half of this amount. As a result the DOI renews its request to the DOD for funding logistical support for the survey.²⁹⁹

Aug 75

RADIATION

The ERDA issues preliminary reports on the June 1975 survey. The tentative conclusion is that houses already constructed on Bikini Island could be occupied and thus would keep radiation doses within guidelines but that any additional house construction should be on Eneu Island. The survey confirms that radioactivity in the interior of Bikini Island is too high for siting future houses. Results also show that food plants are recycling radionuclides from the soil. Subsequently residents are cautioned not to eat locally grown foods.³⁰⁰

23 Aug 75

RELOCATION

The DOI announces postponement of the planned return of 150 Bikinians to their atoll in September for six months pending analysis and evaluation of the results of the June survey.³⁰¹

Sep 1975

MEDICAL

The BNL issues a 20-year review of the medical findings in the Marshall Islanders exposed to fallout in 1954. The BNL concludes that because thyroid abnormalities continue, surveillance of thyroid effects of fallout should be maintained.³⁰²

10 Sep 75

ADMINISTRATION

CONGRESSIONAL RELATIONSHIP

RADIATION

James L. Liverman, ERDA assistant administrator for environment and safety, on 10 September and W. E. Shedd, DNA deputy director for operations and administration, on 28 August sign the Agreement between the Defense Nuclear Agency and the Energy Research and Development Administration regarding the Interagency Support for Cleanup of Enewetak Atoll. The fulfillment of the agreement is contingent upon congressional funding of the cleanup. According to the agreement's terms, the ERDA will provide directly or through contractors technical and scientific advice to the DNA on radiological activities. The agreement states

It is not possible to reduce the radioactive contamination to pre-test levels. It is possible...to rehabilitate the atoll in a manner that will assure the safety of the returning people by employing certain minimal and acceptable restrictions on land use and locally grown foods, and by maintaining a continuing surveillance of the residual radioactivity....The guidelines for radiological cleanup recommended by AEC/ERDA are based on Federal standards....The determination as to when the DOD cleanup activities have been successfully completed will be a joint DNA/ERDA decision.

According to the agreement, ERDA also will pursue such programmatic activities as establishing baseline data for radiological protection of the Enewetakese, conducting biomedical and environmental monitoring on Enewetak Atoll, and agricultural research and experimentation.³⁰³

17 Sep 75

ADMINISTRATION

The DOD cites the decision to postpone resettlement of Bikini as an indication that a new radiological survey of Bikini similar to that performed at Enewetak is necessary. The DOD thus indicates a willingness to consider funding logistical support for the survey. Prior to making any commitments, the deputy secretary of defense calls for a comprehensive review of plans and programs that deal with the residual problems of nuclear weapons testing in the Pacific.³⁰⁴

Oct 75

LEGAL RESPONSIBILITY

RADIATION

The people of Bikini file suit in U.S. District Court for the District of Hawaii with the People of Bikini et al vs. Robert C. Seamans, Jr., et al. and request that the

court order a radiological aerial survey of Bikini. They subsequently amend the original motion and ask the court to enjoin the defendants from proceeding further with the Bikini Resettlement Program until the government complies with the requirements of the National Environmental Policy Act (NEPA). The plaintiffs want the government to begin an environmental impact study and the court to prohibit the government from reprogramming funds earmarked for the Bikini Resettlement Program. The Marshallese also ask the court to require the government to submit to the court a plan for completing a radiological study of the Bikini people.³⁰⁵

9 Oct 75

**ADMINISTRATION
RADIATION**

After Martin B. Biles, director of ERDA/DOS, and Roger Ray agree that the NV can fulfill the tasks and responsibilities of ERDA under the DNA-ERDA Enewetak cleanup agreement, Biles designates the NV as the office in charge of carrying out the ERDA portion of that agreement.³⁰⁶

1976

**CONTRACTOR
RADIATION
PLUTONIUM
WEAPON TESTING**

The BNL initiates an external radiation survey program for Rongelap, Rongerik, Ailuk, Wotje, and Utirik Atolls to gather information on ambient radiation levels from weapon testing in order to make external dose calculations for people living in the surveyed areas.³⁰⁷

Urine bioassays from Bikini show plutonium²³⁹ and plutonium²⁴⁰ levels higher than 1971 by a factor of two. Cesium¹³⁷ levels from urine are higher than 1970 values by a factor of about 30. Strontium⁹⁰ levels are higher by a factor of about five. This information is provided as testimony during House Appropriations Committee hearings in spring 1978. It is reportedly from an 11 May 1977 memorandum from Conard to Liverman.³⁰⁸

23 Jan - 20 Feb 76

**CONTRACTOR
MEDICAL
RADIATION
RELOCATION**

On 23 January Roger Ray, ERDA/NV assistant manager for environment and safety, recommends to James L. Liverman, ERDA director of the division of biomedical and environmental research (DBER), approval of a BNL medical team "sick call" to Bikini Island residents. According to Ray, NV is prepared to support this activity and to assist with an accompanying information program. Ray bases his recommendation on requests from Oscar de Brum, Marshall Islands district administrator, and the Bikini representative and the awareness of the islanders' apprehension about possible radiation effects because of their residence on Bikini Island. On 20 February Liverman approves the BNL visit to Bikini during the regular medical survey of the Marshall Islands, providing that the Bikinians invite the team, that their attorney and the T.T. government approve, "and that adequate explanation be provided to the Bikini people to the effect that the sick call is not necessitated by any radiation exposure that they may have received."³⁰⁹

Apr 76

**CONTRACTOR
RADIATION**

The BNL conducts a survey of external radiation levels on Nam Island, Bikini Atoll.³¹⁰

Sep 76

**CONTRACTOR
RADIATION**

The University of Washington and BNL measure external radiation levels and collect environmental samples of five atolls.³¹¹

16 Sep 76

**AGREEMENT
LEGAL RESPONSIBILITY**

The United States and the T.T. sign agreements granting use and occupancy rights to Enewetak to the T.T. but allowing the U.S. to retain residual rights to permit cleanup of the atoll. Under these rights ERDA will conduct a variety of research and monitoring operations as part of its long-term responsibility for long-term radiological surveillance of Enewetak.³¹²

The T.T. government and representatives of the Enewetak people sign an agreement that states that the \$20 million appropriated for cleanup of Enewetak Atoll in P.L. 94-367, the DOD Military Construction Appropriations Act, 1977, "shall constitute the total commitment of the Government of the United States for the cleanup of Enewetak Atoll."³¹³

17 Sep 76

CONGRESSIONAL RELATIONSHIP

Fred M. Zeder, DOI, director of territorial affairs, requests that Congress expedite action on funding for rehabilitation and resettlement of Enewetak so that the DOI/T.T. rehabilitation project will be able to share some of the logistic and support operations from DOD cleanup operations.³¹⁴

8 Dec 76

**CONTRACTOR
PLUTONIUM
RADIATION**

The Transuranium Technical Group (TTG) reviews data showing urine plutonium levels of Bikini residents as 10 times greater than plutonium levels in the urine of residents in the continental U.S. The TTG questions the validity of the data because samples were not collected in a way that avoids possible contamination of urine by plutonium soil in the air or on the body and clothing of the person providing the sample. The pooling of urine samples also prevents identification of sampling discrepancies. The TTG recommends an effort to obtain urine samples from representative Bikini residents in a controlled environment but advises that these activities might cause psychological and sociological stresses to the Bikini people "of more critical concern than the potential hazard from radiation." W.J. Bair, Battelle, Pacific Northwest Laboratories (PNL), is chair of the TTG.³¹⁵

Jan 77

**CONTRACTOR
RADIATION**

According to the LRE analysis of a radiological survey of seven Marshall Islands atolls for the AEC/DOS from 1974 to 1975, strontium⁹⁰ and cesium¹³⁷ are dominant in the terrestrial environment; and americium²⁴¹, plutonium²³⁹, and plutonium²⁴⁰ are also in the soil from Bikini and Rongelap.³¹⁶

4-5 Feb 77

**AGREEMENT
MEDICAL**

Representatives of the ERDA and the T.T. meet on Kwajalein regarding medical care of the Rongelap and Utirik people. While the general medical care of the people of the Marshall Islands is the responsibility of the T.T., ERDA and T.T. agree to work together to extend medical care and treatment to all people living on the islands. The ERDA agrees to invite T.T. medical personnel to join ERDA medical visits, to assist in arranging for U.S. doctors to participate in the medical team visits, and to extend the duration of the medical team visits to assist the T.T. in providing general medical care.³¹⁷

24 Feb 77

ADMINISTRATION

James L. Liverman, ERDA assistant administrator for environment and safety (AES), recommends that his office establish a headquarters position to coordinate and manage health and safety research and surveillance activities in the Pacific.³¹⁸

15 Mar 77

RELOCATION

Fifty-six Enewetakese return to Japtan.³¹⁹

Apr 77

RADIATION

In vivo counting for Bikini Island residents indicates a ten-fold increase in body burdens of cesium¹³⁷ from a 1974 survey and results in an annual whole body dose of about 0.4 rem/yr. The standard is 0.5 rem/yr. The elevated dose rates are attributed to use of foods grown on Bikini Island.³²⁰

21 Apr 77

ADMINISTRATION

Hal Hollister, ERDA acting director of the division of safety, standards, and compliance (SSC), does not concur with Liverman's proposal to establish a scientific manager in the Pacific for all AES Pacific activities. He suggests no change in current management of AES activities at the field level and recommends additional emphasis on coordination and program development at headquarters.³²¹

26 Apr 77

ADMINISTRATION

In clarifying the SSC position against Liverman's proposal, L. Joe Deal, ERDA assistant director for health protection of the SSC, cites serious differences of opinion with NV. Deal states that his division has been trying to sort out the proper role of headquarters versus the field and to perform the headquarters' function.³²²

4 May 77

ADMINISTRATION

P.L. 95-26 includes \$2.6 million in funds for the DOI to cover the DOD cost for necessary support for radiological surveying of the northern Marshalls.³²³

16 May 77

**ADMINISTRATION
CONTRACTOR
MEDICAL
RADIATION**

According to medical examination, 42 of 65 exposed Rongelap people now living have thyroid abnormalities. Bioassays show an increase in cesium¹³⁷ body burdens of the Bikini people. The ERDA, the DOI, and the BNL agree to have the BNL conduct whole body counting on the returning Enewetakese. Present responsibilities for radiation assessment in the ERDA are divided between the ERDA division of operational and environmental safety (DOES) and the DBER. The DOES obtains radiological data from the BNL for terrestrial evaluation; from the University of Washington for marine sampling; and from the LLL for dose assessment. The DBER collects data of scientific interest from a research standpoint.³²⁴

26 May 77

**AGREEMENT
WEAPON TESTING**

The ERDA and the DOD execute a memorandum of understanding on planning and support for Safeguard "C" and conduct of nuclear weapons tests outside North American continental limits. The ERDA/DMA and the director of DNA are designated to implement Safeguard "C." Johnston Atoll is selected as the principal readiness-to-test facility in the Pacific.³²⁵

27-29 Jun 77

RADIATION

Marshall Islands workshop participants ask for reevaluations of Enewetak cleanup plans.³²⁶

28 Jun 77

**ADMINISTRATION
RADIATION**

The DOD designates the Navy as the executive agent for the coordination and execution of the DOD responsibilities for logistical support of the aerial radiological survey of the northern Marshalls.³²⁷

4 Aug 77

ADMINISTRATION

President Jimmy Carter creates the Department of Energy (DOE) by signing P.L. 95-91.

15-17 Aug 77

**CONTRACTOR
RADIATION**

Representatives from PNL, Oak Ridge National Laboratory (ORNL), HASL, LASL, the Lovelace Foundation for Medical Education and Research (LFMER), and LLL agree that the criteria for cleanup of plutonium-contaminated islands, including Enewetak,

are reasonable in light of present knowledge and that their application does not pose an unacceptable health risk.³²⁸

Oct 77

**CONTRACTOR
RADIATION**

The BNL installs a wind-powered, long-term air sampling station on Bikini Island.³²⁹

Urine samples are collected from Bikini residents under controlled conditions to avoid contamination.³³⁰

1 Oct 77

ADMINISTRATION

The DOE is activated.

15 Oct 77

LEGAL RESPONSIBILITY

**MEDICAL
RADIATION
RELOCATION**

P.L. 95-134 authorizes \$12.4 million for rehabilitation and resettlement of Enewetak Atoll. The Secretary of Interior is to pay people who were residents of Rongelap and Utirik Atolls on 1 March 1954, \$25,000 to each person with hypothyroidism or removal of a thyroid gland or neurofibroma or a radiation-related malignancy; \$1,000 to each person who was a resident on Utirik; up to \$25,000 in compassionate compensation to any other person who suffered physical injury or harm from a radiation-related cause; and an additional payment of not more than \$100,000 to the heirs of anyone whose death is related to the thermonuclear detonation. The ERDA administrator is to assume the costs of appropriate medical care and treatment for those suffering from radiation illness or injury.

P.L. 95-134 also authorizes medical care for the Marshall Islanders exposed to the 1954 Castle Bravo fallout, including the diagnosis and treatment of radiation-related diseases. The DOE is responsible for funding this medical care.³³¹

Nov 77

RADIATION

The T.T. government institutes a complete dietary program for all residents of Bikini.³³²

13 Dec 77

**CONTRACTOR
RADIATION**

According to the BNL, 30-year integral dose predictions from external sources exclusive of background radiation for inhabitants of Rongelap and Utirik Atolls are 0.65 and 0.06 rem respectively. The BNL concludes that inhabitants of Rongelap may have difficulty meeting ICRP criteria of 5 rem in 30 years, but should be within the 0.5 rem/year standard for individuals.³³³

1978

AGREEMENT

The signing of the Statement of Agreed Principles for Free Association (the Hilo Principles) lay the cornerstone for the Compact of Free Association (COFA) by providing a framework for the negotiation of the compact. The Hilo Principles call

for approval of the free association agreement by a plebiscite under observation by the United Nations.³³⁴

Jan 78

**PLUTONIUM
RADIATION**

At the request of the DOE DBER and DOES, LLL scientists assess the potential doses to populations at Enewetak Atoll from transuranic radionuclides. The study provides dosage estimates to the population via various exposure pathways, such as the marine pathway, the inhalation pathway, the terrestrial food chain, and groundwater. The predicted dose rates for the southern islands and Enjebi Island do not exceed the 1 mrad/yr to lung nor the 3 mrad/yr to bone guidance proposed by the EPA.³³⁵

5 Jan 78

ADMINISTRATION

The Secretary of the Interior notifies the Secretary of Defense of his concern that the DOD is not moving ahead with the required logistical support for the radiological survey in the northern Marshalls and requests assistance and cooperation in expediting arrangements to carry out this commitment.³³⁶

6 Jan 78

AGREEMENT

The DOE and the DNA agree to include all transuranics in the cleanup of Enewetak.³³⁷

Feb 78

**CONTRACTOR
PLUTONIUM
RADIATION**

According to LLL, the Enewetak lagoon is the largest reservoir of transuranics in the atoll and little alteration is expected in the present distribution of transuranics in the sediment over the next few decades.³³⁸

14 Mar 78

RADIATION

In a memorandum Charles J. Treat of DNA sets forth the Enewetak cleanup decisions that need to be resolved in an upcoming meeting and provides an account of his discussions with Roger Ray regarding these issues. These issues include: whether to clean up Runit and how that matter relates to other soil cleanup decisions and whether to change task group levels on Enjebi from 40 pCi/g to 50 pCi/g.³³⁹

Apr 78

RADIATION

Radiological surveys of Bikini residents show a 75 percent increase in cesium¹³⁷ burdens compared to 1977. Twelve of about 140 people exceed current standards for body burdens.³⁴⁰

21 Apr 78

**CONGRESSIONAL RELATIONSHIP
RADIATION**

The House Subcommittee on Health and the Environment of the Committee on Interstate and Foreign Commerce asks Secretary of Defense Harold Brown about

the DOD's participation in the Enewetak cleanup and the protective measures being taken to protect those involved in cleanup activities.³⁴¹

26-27 Apr 78

RADIATION

The Enewetak Advisory Group meets in Denver and decides that it is not possible to develop reasonable cleanup guidance to assure that future residents would not receive radiation doses from transuranics that would significantly exceed proposed EPA guidelines. They propose a standard of cleanup for all one-quarter or one-half hectare areas exceeding 40 pCi/g of surface soils of village islands that should meet EPA guidelines for the resulting doses in the bone and lung.³⁴²

May 78

**CONTRACTOR
RADIATION
RELOCATION**

Coconut, papaya, and breadfruit samples are collected from the Eneu test plot to help assess the suitability of Eneu as a permanent residence for the Bikinians. The LLL is in charge of analyzing the food samples.³⁴³

22 May 78

**RADIATION
RELOCATION**

Oscar de Brum, District Administrator from the Marshall Islands, testifies before the U.S. House Subcommittee on the Interior of the appropriations committee that the only way to prevent the Bikinians from using coconuts from the island is to remove the trees or remove the people. The DOI reports that the current Bikini population will be moved from Bikini in 75 to 90 days.³⁴⁴

Jul 78

CLAIMS

As part of the Micronesia status negotiations Matthew Nimetz, chair of the Micronesia Interagency Group, establishes a Micronesia Interagency Group Task Force on Claims Issues to study claims arising from U.S. nuclear testing and related activities in the Marshall Islands. The task force is chaired by the Office of Micronesia Status Negotiations and contains representatives from the Departments of State, Defense, Energy, Interior, and Justice, and OMB.³⁴⁵

26 Jul 78

**ADMINISTRATION
CONTRACTOR
RADIATION**

The aerial photographic mission, the first phase of the 13 Atoll Survey of the northern Marshalls, begins. The DOE/DOES manages the survey and acts as coordinator with Washington-level federal agencies. The manager, NV, is in charge of logistics coordination for survey field operations; a technical director from LLL provides technical direction of aerial, terrestrial, and marine field operations and for laboratory analysis and dose assessments. Contractors include BNL, University of Washington, LLL, and EG&G.³⁴⁶

2 Aug 78

AGREEMENT

Liverman, the DOE acting assistant secretary for environment, signs the Memorandum of Agreement between the Navy, the DOE, and the DOI on logistics support for the aerial radiological survey of the northern Marshall Islands.³⁴⁷

16 Aug 78

**AGREEMENT
RELOCATION**

After concerns are raised during meetings with the residents of Bikini and Kili Islands, officials of the DOE, representing the U.S. government, and the T.T. sign a statement of understanding on moving Bikinians. The DOI will arrange for satisfactory permanent relocation and will ask the DOE to assure that medical needs of Bikini Island residents are met. The U.S. government will undertake a program for the permanent rehabilitation of Kili and, following completion of the aerial survey, will work with Kili residents to choose other relocation sites. If future studies show Eneu can be safely inhabited, Bikini residents will be allowed to move there. Brief visits to Bikini will be allowed. Necessary housing, community facilities, and a dock will be built at Kili. A relocation allowance of \$100.72 per person will be given to Bikini residents.³⁴⁸

18 Aug 78

**LEGAL RESPONSIBILITY
RELOCATION**

P.L. 95-348 appropriates \$15 million for the Bikini people evacuated from Bikini Atoll as a result of nuclear tests, of which \$12 million is authorized for the relocation and resettlement of the Bikini people, and \$3 million is held in trust pursuant to the trust agreement in P.L. 94-34. The Secretary of the Interior must submit a progress report to Congress on efforts to find a permanent location for these people by 1 July 1979.³⁴⁹

28 Aug 78

RELOCATION

Relocation of Bikini residents to Kili Island begins.³⁵⁰

Sep 78

RADIATION

The technical phase of the Thirteen Atoll Survey begins.³⁵¹

27 Oct 78

**LEGAL RESPONSIBILITY
RADIATION**

The People of Bikini, et al., vs. Robert C. Seamans, Jr., et al., of October 1975, is dismissed. Following negotiations with the Department of Justice, the plaintiffs drop the suit on condition that a more comprehensive radiological survey of Bikini is conducted and that this survey be extended to ten other atolls and two other islands. The Bikini people will select a qualified scientist to work under contract with the DOE to provide independent analysis of survey data.³⁵²

1979

**ADMINISTRATION
MEDICAL
RADIATION**

According to a General Accounting Office (GAO) report on the cleanup of Enewetak Atoll, the DOE has the responsibility for future periodic radiological surveys of Enewetak Atoll and periodic medical and environmental monitoring of the people and the environment after rehabilitation. (There is no official agreement between the U.S. and the people of Enewetak regarding these matters.) The GAO recommends establishing an agreement to monitor and inspect entombed radioactive soil and debris following the termination of the T.T. agreement. The GAO advises the DOI to initiate independent assessment of the Enewetak cleanup project, a suggestion agreeable to the DOE.³⁵³

Jan 79

RADIATION

Measured body burdens of cesium¹³⁷ in former Bikini Island residents show a reduction factor from 1978 to 1979 of 2.3 for males, 3.8 for females, and 12 for children.³⁵⁴

30 Jan 79

**ADMINISTRATION
RADIATION**

The DOE requests the DOD support for a radiological survey of soil on the northern Marshall Islands to determine residual fission products in the soil, to help calculate dose assessments, plan the DOE's rehabilitation program for coconut planting, and determine the feasibility and/or timing of Enjebi resettlement.³⁵⁵

Feb 79

RADIATION

DOE Enewetak Radiological Support Project (ERSP) establishes a Fission Product Data Base (FPDB) to collect essential information to provide dose assessments for 18 islands of Enewetak Atoll.³⁵⁶

1 Mar 79

ADMINISTRATION

In a referendum the people of the Republic of the Marshall Islands (RMI) approve a constitution.³⁵⁷

27-28 Mar 79

RADIATION

To avoid repeating the Bikini experience, the Northern Marshall Islands Advisory Group recommends that all dose calculations used to make decisions regarding habitation of the Marshall Islands be independently verified by two or more organizations.³⁵⁸

Mar-Apr 79

**CONTRACTOR
RADIATION**

The DOE conducts soil survey of Enjebi Island and other northern islands of Enewetak Atoll. LLL analyzes results.³⁵⁹

1 May 79

ADMINISTRATION

The RMI inaugurates a parliamentary constitutional government.³⁶⁰

15 May 79

**RADIATION
RELOCATION**

In response to a request by the DOI for a definitive statement by the DOE on the possibility of returning Bikinians to Eneu Island, Ruth Clusen, the DOE assistant secretary for environment, states that a return to Eneu Island cannot take place for 20 to 25 years when applying the radiation criteria of 250 mrem/yr per person used for the Enewetakese.³⁶¹

17 May 79

**ADMINISTRATION
CONTRACTOR
RADIATION**

Roger Ray and Harry Brown meet with President Amata Kabua and members of the cabinet of the government of the Marshall Islands. They discuss the DOE's interest in gaining cooperation from the Tobolar copra plant to replicate the Tobolar process in a laboratory at LLL. (Tobolar is a Marshallese word that means "sprouting coconut.") They also confer about the safety of Eneu as a residential island, radiation levels on Bikar and Bokar, thyroid abnormalities on Likiep, and the northern Marshall Islands survey.³⁶²

21 May 79

**RADIATION
RELOCATION**

The DOI informs the T.T. that Eneu Island must be placed off limits as a place of residence for the Bikini people for at least another twenty to twenty-five years. The DOI stresses that the U.S. government must use the same radiation exposure criteria for the people of Bikini as that used for Enewetak.³⁶³

4 Jun 79

RADIATION

The Marshall Islands Nijitela (legislature) adopts a resolution requesting that the U.S. government and the UN conduct a radiological survey of the waters and land areas in the Marshall Islands, north of 8° north latitude, including all of Namu Atoll, to determine radioactivity in the area and to carry out medical examinations to identify physical disorders which may be attributable to nuclear explosions on Bikini and Enewetak Atolls.³⁶⁴

Aug 79

RADIATION

The DOE, the DOI, and the EPA and their legal counsels agree on the necessity of determining a U.S. position with respect to the applicability of U.S. exposure guidance in the Marshall Islands, particularly at Enewetak, and to determine the extent to which the U.S. has the authority and responsibility to enforce this guidance. The EPA believes that federal guides to radiation protection apply to the Marshall Islands people who want to return to Enewetak, but that, in carrying out its programs, the DOI can allow the possibility of occasional individual doses in excess of 0.5 rem/yr if it has a carefully considered reason for doing so.³⁶⁵

12 Sep 79

RELOCATION

In an open letter to members of the council of Ujelang and Enewetak and the people of those atolls prior to the Enewetak radiation dose assessment meetings, President Kabua advises them that the government "cannot bless nor participate in any decision-making for your return to Enewetak" unless it is certain about all aspects of lingering radiation danger. He expresses his concern about whether the initial dose assessment meetings can achieve informed consent by the people of Ujelang and Enewetak and advises them not to rush with a decision if they feel they are not yet ready to make one.³⁶⁶

16 Sep 79

RADIATION

Completion ceremony for the concrete dome covering radioactive debris is held on Runit Island.³⁶⁷

18 Sep 79

**ADMINISTRATION
RADIATION**

The Ujelang/Enewetak council adopts resolutions requesting that six members of the Enewetak planning council be permitted to be present on Enewetak from 1 October 1979 to 31 January 1980 to have a greater role in the final phase of the Enewetak Atoll rehabilitation project. The council also asks that future planting of breadfruit trees on Japtan be on the ocean side of each wato in close proximity to homesites and not interspersed with coconut palms.³⁶⁸

18-20 Sep 79

**RADIATION
RELOCATION**

At a dose assessment conference at Ujelang Atoll DOE representatives discuss the radiological status of Enewetak Atoll with the people of Enewetak. The people of Enewetak, in consultation with Drs. A. Bertrand Brill, Michael A. Bender, Robert A. Kiste, and William E. Ogle, and legal counsel, decide the preferred course for resettlement and use of the islands of the atoll. The DOE staff presents and explains its book "Enewetak Today." Following the meeting with DOE, the council of Enewetak meets with Theodore R. Mitchell, MLSC, and his advisors, and adopts a resolution stating that the people of Enjebi "shall and must" return to live on Enjebi and imploring the U.S. government to concur with this decision and assist the people of Enjebi to return to their homeland.³⁶⁹

28 Sep 79

RADIATION

In response to a verbal request from Ruth Van Cleve, director, office of territorial affairs, DOI, Bruce W. Wachholz, DOE office of environment, assesses the radiological consequences to the people of Enewetak if they reside only on Enewetak, Medren, and Japtan, and if coconut trees are planted on the northeastern islands of the Enewetak Atoll. Given these assumptions and limitations, the radiation exposure estimates are below U.S. exposure guidance and AEC recommendations.³⁷⁰

12 Oct 79

**RADIATION
RELOCATION**

Michael A. Bender and A. Bertrand Brill of National Cytogenetics, Inc. issue "Assessment of Radiation Health Effects of the Resettlement of Enewetak Atoll," a report prepared for MLSC. They conclude that their risk assessments are in substantial agreement with those the DOE presented to the Enewetak people at the dose assessment conference. Bender and Brill conclude that the average yearly doses probably will be relatively small for the people of Enewetak following resettlement of the atoll, including Enjebi.³⁷¹

22 Oct 79

**RADIATION
RELOCATION**

In response to a request by the people of Enewetak for the DOI to consider agricultural redevelopment and reestablishment of a community on Enjebi, Ruth Van Cleve, DOI director of the office of territorial affairs, asks the DOE to estimate the amount of time it would take for exposure levels on Enjebi to meet applicable exposure limits.³⁷²

30 Oct 79

**RADIATION
RELOCATION**

In response to the DOE and the DOI questions regarding whether the proposal to resettle Enjebi requires a supplemental environmental impact statement, Theodore Mitchell, MLSC, responds that resettlement of Enjebi was sufficiently studied in the 1975 environmental impact statement.³⁷³

15 Nov 79

**CONTRACTOR
RADIATION**

Roger Ray reports that NV/ERSP is evaluating a systematic error in the in situ measurement of americium in Enewetak. This error, in the range of 20 to 25 percent, derives from improper use of a soil composition that is not representative of the actual. If these errors were introduced into the LLL preliminary dose assessment, then the data are lower than actual radioactivity levels. (The calibration procedures used in IMP calculations of transuranics data in the LLL preliminary dose assessment were first questioned by Ed Bramlitt of the DNA field command.) As a result, the LLL revised dose assessments are put on hold until the error is clarified and the extent of necessary revisions is assessed.³⁷⁴

3 Dec 79

**RADIATION
RELOCATION**

In a draft response to Van Cleve's request for time estimates for safe exposure levels on Enjebi, Wachholz provides time estimates ranging from 60-65 years and 90-95 years that take into account assumptions about lifestyle patterns and DOE recommendations.³⁷⁵

Jan 80

**CONTRACTOR
MEDICAL
RADIATION**

The BNL issues Review of Medical Findings in a Marshallese Population Twenty-Six Years After Accidental Exposure to Radioactive Fallout. The report emphasizes that many uncertainties were involved in calculating the early radiation doses received by the Marshallese prior to their evacuation. Because of possible further development of thyroid abnormalities, BNL recommends regular medical examinations.³⁷⁶

Mar 80

RADIATION

The DNA announces that the Enewetak cleanup is completed. The total cost of the cleanup and rehabilitation phase is \$218 million.³⁷⁷

12 Mar 80

**AGREEMENT
MEDICAL**

P.L. 96-205, the Burton bill, takes effect. This law gives responsibility to the Secretary of Interior to provide medical care and treatment for the people of Bikini, Enewetak, Rongelap, and Utirik Atolls who have been exposed to radiation from the nuclear weapon testing program and to support environmental research and monitoring for any injury, illness, or condition that may result from the nuclear weapon testing program. The Secretary of Interior must submit a plan for a comprehensive four-atoll health program by 1 January 1981. All costs and implementation of the plan are to be assumed by the DOE.³⁷⁸

4 Apr 80

RELOCATION

Johannes Peter, Binton Abraham, and John Abraham, hereditary and elected leaders of Enewetak Atoll, write President Jimmy Carter because they disagree with statements made to Carter by RMI President Kabua. Kabua reportedly had asked Carter to look into the resettlement of Enewetak. Peter, Abraham, and Abraham believe that additional study is unnecessary because independent advice by Bender and Briel (1979) favors Enewetak resettlement. They allege that President Kabua is motivated by funding and politics and is not speaking for the majority of the Enewetak people.³⁷⁹

May 80

RELOCATION

The Enewetak people return to Enewetak Atoll.³⁸⁰

Sep - Oct 80

**ADMINISTRATION
MEDICAL
RADIATION**

The DOE issues The Meaning of Radiation at Bikini Atoll to the Marshallese to explain the results of the 1978 survey. The report states that the Bikini people would be within U.S. radiation standards if they returned to Eneu Island under the provisions that they import 50 percent of their food and spend less than 10 percent of their time on Bikini Island.³⁸¹

The DOE presents and explains "The Meaning of Radiation at Bikini Atoll" to the Bikini people living on Kili.³⁸²

1 Oct 80

ADMINISTRATION

Beginning in FY 1981 the LLL dose assessment project, the BNL whole body counting activities, and the University of Washington projects are transferred to the DOE Office of Health and Environmental Research (OHER).³⁸³

30 Oct 80

**CONTRACTOR
RADIATION**

The LLNL issues Reassessment of the Potential Radiological Doses for Residents Resettling Enewetak Atoll. This report refines the dose predictions for various living patterns proposed for the resettlement of Enewetak Atoll.³⁸⁴

3 Dec 80

**ADMINISTRATION
CONTRACTOR
MEDICAL**

A Loma Linda University report from a contract with the DOI on the four-atoll health plan concludes that the best solution would be to improve the health care available throughout the Marshall Islands. Neither the DOI nor the Marshall Islands government officially endorses the plan.³⁸⁵

24 Dec 1980

AGREEMENT

P.L. 96-597 states that all rights, title, and interests of the U.S. government in personal property or property of the government of the T.T. of the Pacific Islands located in the T.T. of the Pacific Islands shall be transferred without reimbursement by 1 October 1982 to the T.T.³⁸⁶

1981 & 1982

CLAIMS

Fourteen petitions on behalf of approximately 5,000 Marshall Islands inhabitants are filed in the U.S. Court of Claims for property claims resulting from the nuclear weapons testing program. The petitions are consolidated into three cases: *Juda vs. U.S.*, involving inhabitants of the Bikini Atoll; *Peter vs. U.S.*, concerning inhabitants of Enewetak Atoll; and *Nitol vs. U.S.*, including inhabitants of atolls and islands that were not used as test sites. *Juda vs. U.S.* alleges damages of \$450 million. *Peter vs. U.S.* seeks damages of \$500 million. *Nitol vs. U.S.* claims damages of \$400 million in each of the 12 cases, which total \$4.80 billion.³⁸⁷

1981

**CLAIMS
LEGAL RESPONSIBILITY**

The Marshall Islands Testing Litigation Project is initiated. A consortium of U.S. law firms announces the filing of personal injury claims against the U.S. government on behalf of more than 600 Marshallese.³⁸⁸

27 Feb 81

ADMINISTRATION

Robert L. Morgan, DOE acting assistant secretary for defense programs, proposes a reorganization of Defense Programs (DP) to comply with the reorganization of DOE by Secretary James B. Edwards. Morgan recommends, among numerous weapons responsibilities, that the deputy assistant secretary for military application exercise direction over the office of safety, environment and emergency actions. M. Whitley of DP prepares these proposals for Morgan.³⁸⁹

Mar 81

**POLICY
RELOCATION**

Approximately 100 Enewetak people return to Ujelang from Enewetak because of lack of coconuts and other fresh fruits.³⁹⁰

Enewetak leaders petition the U.N. Trusteeship Council to continue the trusteeship arrangement with the U.S. after the agreement has been terminated with the rest of Micronesia.³⁹¹

7 Apr 81

ADMINISTRATION

Following a DOE departmental reorganization transferring the biological and environmental research (BER) program from the former office of the assistant secretary for the environment to the office of energy research (ER), N. Douglas Pewitt, acting director of ER, proposes placing nonresearch Marshall Islands projects related to medical surveillance in the new office of the assistant secretary for environmental protection, safety, and emergency preparedness (ASEP).³⁹²

27 May 81

ADMINISTRATION

"DOE's MI activities are at a crossroads," writes Tommy McCraw, DOE health physicist, in response to Dr. Bruce Wachholz's question of who should manage the DOE Marshall Islands program and whether NV should administer it. McCraw mentions that disagreements have occurred between the NV and headquarters staffs over who should manage the Marshall Islands program and how it should be operated. The NV representatives, says McCraw, have given the Marshallese the impression that the NV has "almost endless resources" compared to the T.T. officials. McCraw also states that the AEC and the ERDA management "were never willing to formally give NV more responsibility in the Marshalls than responsibility for logistics support." According to McCraw, the DOE and its predecessors have received no clear directions from Congress to provide radiological follow-up in the Marshalls; moreover, McCraw finds that the DOE "currently has no approved policy and no plan for these activities." McCraw concludes that giving NV staff the responsibility for the DOE Marshall Islands program will give the impression in Washington and Majuro that the DOE wishes to provide leadership on Marshall Islands matters that will require new responsibilities and enlarged funding "with no end in sight."³⁹³

26 Oct - 20 Nov 81

ADMINISTRATION

Citing a "very large program growth," Herman E. Roser, DOE assistant secretary for DP, on 26 October recommends and on 20 November DOE Secretary Edwards approves a reorganization of DP to consolidate program management areas and to delegate program management responsibilities to three deputy assistant

secretaries. Roser anticipates "continuing management requirements for a major DOE mission area."³⁹⁴

1982

**ADMINISTRATION
CLAIMS
CONTRACTOR
MEDICAL**

Antolok, Cathelina, et al. vs. BNL, et al. is filed in U.S. District Court, Central District, California, charging that contractors, acting as agents of the U.S. government, caused physical injury and death and breached fiduciary duty to protect the health and well-being of the plaintiffs, who are Marshallese. Defendants include LLNL, Pacific Northwest Laboratory, Battelle Memorial Institute, LANL, and Sandia Laboratories. The plaintiffs seek damages for past and future medical expenses, property damage, contamination of environment, suffering, and \$4 billion in punitive damages.³⁹⁵

The manager of NV proposes to consolidate all of the Marshall Islands programs in the DOE DP office.³⁹⁶

BNL issues Medical Status of Marshallese Accidentally Exposed to 1954 Bravo Fallout Radiation: January 1980 through December 1982. This report concludes that there is no statistically significant difference between the survival curves of the radioactively exposed and unexposed groups.³⁹⁷

29 Jan 82

**RADIATION
CONTRACTOR**

LLNL issues "An Updated Radiological Dose Assessment of Bikini and Eneu Islands at Bikini Atoll," which addresses potential dose assessment after resettlement at Bikini Atoll.³⁹⁸

Feb 82

ADMINISTRATION

The NV staff recommends that it be given additional authority to implement the NEPA because current procedures for environmental assessments and impact statements slow down field action. The NV request would diminish the authority of the office of environmental protection, safety, and energy preparedness (EP) at headquarters on environmental assessments and impact statements.³⁹⁹

2 Mar 82

ADMINISTRATION

Kristine Morris drafts a memorandum for DOE Assistant Secretary of DP Herman E. Roser's signature that recommends transferring the Marshall Islands programs from EP to DP. She circulates the draft to Roger Ray and Tom Cornwell for comment. Cornwell suggests that Morris include more about the history of U.S. government acquisition of the Marshalls for nuclear testing and separate sections about the Burton Bill and Safeguard "C."⁴⁰⁰

23 Mar 82

ADMINISTRATION

Herman E. Roser urges the Secretary of the DOE to transfer the Marshall Islands programs from EP to DP. Roser supports his request by recalling that during 1977-1980 the DOE Enewetak Radiological Support Project "provided the critical expertise" for the DNA \$100 million cleanup in the Marshall Islands. Roser adds that

the DOE/NV organized and conducted the radiological survey of 288 islands in the northern Marshalls as part of the DOE project. Recognizing that EP has been responsible since 1977 for the Marshall Islands programs, Roser explains that, except for the professional medical responsibility, the technical resources currently in the Marshall Islands are primarily weapons-related and are part of the Safeguard "C" program to maintain the capability to resume atmospheric testing. "In fact," adds Roser, "much of the field effort in the Marshall Islands is an exercise of the expeditionary capability which is an important aspect of Defense Programs' Safeguard 'C.'" Because most of the DOE logistic and support base "is common to the Safeguard 'C' readiness program," DP should assume direction and control of the DOE Marshall Island activities, Roser concludes.⁴⁰¹

25 Mar 82

ADMINISTRATION

Kris Morris reports that Herman E. Roser has signed the proposal to transfer the Marshall Islands program to DP. The only issue is one of where to locate the program in DP: in program support (PS) or safety, environment, and emergency actions (SEEA). Morris recommends that the program be placed in PS. She does not foresee the need for additional staff because the bulk of the work is done in NV and the Pacific Area support office (PASO).⁴⁰²

Apr 82

ADMINISTRATION

Dr. Charles W. Edington, associate director of the DOE OHER, calls the linking of Safeguard "C" to the Marshall Islands program "ludicrous." Edington drafts an issue paper discussing the proposed transfer of the Marshall Islands program to DP. The paper, which was never sent, concludes: DP does not have the medical or technical staff to manage the program and an association of the health care and radiological monitoring programs to the weapons program will destroy any pretense of objectivity. OHER sees no point in continuing research at the Mid-Pacific Marine Laboratory. He perceives this attempt as another effort to transfer management of the program to NV. Edington recommends that if EP is unwilling to retain the program that it be transferred to ER/EHER instead of DP. He also acknowledges the differences of opinion between the DOE and NV on DOE's role in the Marshall Islands: while the DOE maintains that it is an advisor to the DOI and the DOD, NV has led the Marshallese to believe that the DOE has a greater responsibility than is the case.⁴⁰³

14 Apr 82

ADMINISTRATION

J. W. Thiessen, acting deputy associate director of EP, opposes the recommendation of Roser to transfer the Marshall Islands program to DP. Thiessen believes that Roser's recommendation results from pressures from NV to take over the policy direction of a program in which NV has had only logistic support responsibility. According to Thiessen, DP also wants the program control in order to retain the Mid-Pacific Research Laboratory on Enjebi Island. Thiessen fears that if the program is transferred to DP, then headquarters would not be consulted adequately. Moreover, Thiessen thinks that the DOE should close the Mid-Pacific Research Laboratory because it has been inactive for several years. He recommends that if EP wishes to drop the program, then the Marshall Islands project should be transferred back to his office.⁴⁰⁴

13 May 82

ADMINISTRATION

Herman E. Roser; A.W. Trivelpiece, assistant secretary for ER; and Vaughn, assistant secretary for EP, discuss the transfer of the Marshall Islands programs. ER's position is that although ER does not want to manage the programs, it will contribute expertise and funding. Vaughn sees EP as an oversight office but does not have a prepared position. Roser declares that EP has managed the programs poorly and that if DP receives the programs it will establish immediately a headquarters task force to determine future policy.⁴⁰⁵

30 May 82

AGREEMENT

The United States and the Marshall Islands sign the Compact of Free Association (COFA).⁴⁰⁶

Sep 82

RELOCATION

RADIATION

NV issues Enewetak Radiological Support Project, Final Report, which documents the technical and logistical accomplishments of the ERSP, directed by NV. According to this paper, the ERSP gave DNA technical advice on the cleanup and reported the final radiological condition of each of the atoll's forty-three islets.⁴⁰⁷

30 Sep 82

CONTRACTOR

RADIATION

Lawrence Livermore National Laboratory (LLNL) issues The Northern Marshall Islands Radiological Survey: Terrestrial Food Chain and Total Doses (1982 Report), which is the official documentation of the radiation survey of the northern Marshall Islands in 1978.⁴⁰⁸

1 Oct 82

AGREEMENT

The U.S. and the Federated States of Micronesia conclude a Compact of Free Association and establish a relationship of Free Association between the two governments.⁴⁰⁹

The U.S. and the RMI sign an agreement concluded pursuant to section 234 of COFA that transfers the titles of lands owned but no longer needed by the U.S. government to the governments of the Marshall Islands.⁴¹⁰

19 Oct 82

AGREEMENT

P.L. 97-357 amends P.L. 96-597 of 24 December 1980 by replacing the 1 October 1982 deadline with "by a date not later than ninety days following termination of the trusteeship agreement governing the administration of the T.T. of the Pacific Islands."⁴¹¹

28 Oct 82 - 5 Nov 82

ADMINISTRATION

On 28 October Herman E. Roser concurs with the transfer of Marshall Islands programs and the Nevada Dose Reassessment effort from EP to DP with the expectations that the FY 1983 and 1984 monies for these programs also will be transferred to DP. On 5 November William A. Vaughan, assistant secretary for

environmental protection, safety, and emergency preparedness, signs the recommendation for transfer of these two EP programs to DP and another EP program, radiological surveys and certification, to the assistant secretary for nuclear energy. Among the arguments cited against the Marshall Islands program transfer in an unsigned attachment to Vaughan's 29 October memorandum to DOE Secretary Edwards are: DP has limited headquarters medical, health, or environmental expert staff to direct the program, and "historically, EP has retained management of the program because of its perceived expertise." In that same document proponents of that transfer contend that the Marshall Islands program is primarily operational and related to past weapon testing, a major DP activity; that NV manages the logistical support in the Pacific for DP; and that EP handling represents a conflict with the EP oversight role.⁴¹²

Nov 82

**MEDICAL
RADIATION**

The DOE issues Melelen Radiation Ilo Ailiñ ko Ituiōñ Ilo Majōl, ko Rar Etali Ilo 1978 (The Meaning of Radiation for Those Atolls in the Northern Part of the Marshall Islands That Were Surveyed in 1978) to the Marshallese to explain the results of the 1978 measurements for Rongelap, Utirik, Taka, Rongerik, Ailinginae, Likiep, Ailuk, Jemo, Mejit, Wotho, and Ujelang Atolls. According to Tommy McCraw, the 400 mRem/yr exposure rate "on page 39" appears to be an erroneous value not supported by whole-body monitoring. McCraw says that "the value should be less than 100 mRem/year," provided the food restriction remains effective.⁴¹³

8-9 Dec 82

**CONTRACTOR
MEDICAL
RADIATION**

DOE representatives and contractors from the PNL and LLNL meet with Marshall Islanders at Majuro to explain the 1978 radiological survey. No T. T. representative attends. Roger Ray serves as the DOE spokesman, and Tommy McCraw attends as an observer. The Marshallese ask why only certain islands were included in the survey; which areas are safe with respect to health; and how the radiation affects people's health. According to McCraw, the Marshallese/English book was "well received," and Ray was effective in responding to the purpose and findings of the survey. Nevertheless, McCraw is upset because "some of the Marshallese at the meeting appeared surprised, confused, and skeptical of Roger's statements that food from Enjebi Island and from the northern islands at Rongelap could be eaten with certain qualifications, and that the people should make up their own judgments based upon cancer risk estimates and upon the need for food." McCraw regards Ray's advice as incompatible with the DOE policy of adhering to federal and international radiation protection standards and giving DOE-coordinated radiological advice and assistance to the DOI and the T.T. high commissioner. According to McCraw, Ray's statements on the consumption of Enjebi and northern islands food were not coordinated within the DOE. McCraw considers this episode a continuation of a difference of opinion between DOE headquarters safety staff and NV that started when NV became involved in the Enewetak cleanup.⁴¹⁴

1983

**CONGRESSIONAL RELATIONSHIP
RELOCATION**

Congress creates the Bikini Atoll Rehabilitation Committee (BARC) to investigate and report to Congress on the feasibility and cost of rehabilitating Bikini Atoll. The BARC is funded by the DOI.⁴¹⁵

The Marshall Islands Legislature passes a resolution supporting a relocation request to the U.S. Congress by the Rongelapese.⁴¹⁶

Jan 83

**ADMINISTRATION
CONGRESSIONAL RELATIONSHIP
MEDICAL**

Committee Print No. 3 prepared by the staff of the U.S. House of Representatives Subcommittee on Public Lands and National Parks recommends that the committee reiterate to the administration the congressional intent in P.L. 96-205 that the U.S. provide health care for the Marshallese adversely affected by the U.S. nuclear tests in the Pacific.⁴¹⁷

At the suggestion of the DOE assistant general counsel for general litigation, the deputy assistant secretary for defense programs creates an informal litigation support working group to coordinate litigation support activities. This group's work will include support on cases filed by Marshall Islands inhabitants for claims arising from the atmospheric nuclear testing in the Pacific.⁴¹⁸

11 Jan 83

ADMINISTRATION

Assistant Secretary for DP Herman E. Roser concurs in the transferring of the EP Marshall Islands and Dose Assessment Programs to DP with the understanding that the FY 1984 funding levels of \$4.15 million and \$1.4 million also go to DP because the FY 1984 DP budget contains no money for these programs.⁴¹⁹

26 Jan 83

**ADMINISTRATION
CONTRACTOR
MEDICAL
RADIATION**

Replying to Tommy McCraw's critique of the 8-9 December 1982 DOE meeting with Marshallese at Majuro, Roger Ray denies that representatives of the DOE and contractors made or advocated any change in DOE policy or that he made statements incompatible with past policy. Ray explains

As to the alleged confusion on the part of our Marshallese hosts I would say that if there were not some confusion it would suggest that we were not communicating effectively. I have never yet attended a public meeting on radiation matters where the complexity of the subject did not evoke some degree of confusion and concern.

Ray quotes from the meeting transcript to highlight the impressions of two Marshallese representatives. A member of the parliament tells Ray "that we can now ask things that we want to know and feel comfortable, we want to build on this relationship of sharing information with each other." At the end of the meetings the RMI chief secretary, representing the RMI president, expresses "our extreme gratitude...for the teams coming....for this kind of setting we are able to sit down face to face...discuss these matters, raise questions and get answers or at least have them raised so the answers can be forthcoming eventually."⁴²⁰

14 Feb 83

ADMINISTRATION

According to Maj. Gen. William W. Hoover, DOE director of military application, Roser has placed program management of the Marshall Islands program in the OMA division of program support. Hoover then designates the NV as the lead office to manage this program on a daily basis. The FY 1984 Marshall Islands funding will be included under the weapons program. NV will be responsible for the FY 1985 Marshall Islands budget that will cover LLNL, BNL, H&N and University of Hawaii activities. Headquarters staff involved in the Marshall Islands program are Ralph Ross and Kristine Morris.⁴²¹

29 Mar - 4 Apr 83

ADMINISTRATION

K. Dean Helms, DOE director of organization and management systems, recommends on 29 March and William S. Heffelfinger, DOE director of administration, approves on 4 April the transfer of \$4.15 million and 0.25 of a full-time equivalent position from EP to DP for the Marshall Islands program. According to Helms, no incumbent of an occupied position qualifies for a direct transfer under the Marshall Islands program. Helms attributes the Marshall Islands program transfer to "a result of EP concerns that these program management responsibilities compromised their ability to carry out their basic oversight role."⁴²²

9 Jun 83

ADMINISTRATION

At the request of the DOE/DP the Marshall Islands Planning Group (MIPG) is established at NV. Its purpose is to "review and make recommendations on the technical content of our Marshall Islands programs, to ensure our legal obligations were met, and to undertake long-term planning, recognizing the changing political relationship between our government and that of the Republic of the Marshall Islands."⁴²³

25 Jun 83

AGREEMENT

Because of revisions and the conclusion of a subsequent agreement the U.S. and the Marshall Islands sign for a second time the COFA and all of its subsidiary agreements.⁴²⁴

One of these agreements, for the implementation of section 177 of the COFA, sets forth provisions for the settlement of all claims, for the continued administration by the U.S. of direct medical surveillance and treatment programs and radiological monitoring, and for the assumption of responsibility for enforcement of limitations on the use of affected areas by the RMI with assistance by the U.S.⁴²⁵

7 Sep 83

AGREEMENT

The electorate of the Marshall Islands votes to approve the COFA.⁴²⁶

21 Oct 83

MEDICAL

To date the DOI has not provided the DOE with a development plan for the four-atoll health program and environmental research program.⁴²⁷

21 Oct - 3 Nov 83

**MEDICAL
CONTRACTOR**

The BNL conducts a pediatrics mission to Ebeye and Majuro. Community meetings are held in both Ebeye and Majuro to describe the mission and answer questions. The mission examines 190 children in Ebeye and 140 children from Bikini Atoll.⁴²⁸

23 Nov 83

**CONGRESSIONAL RELATIONSHIP
RADIATION
RELOCATION**

The BARC interim report estimates that it will cost about \$100 million and take two to four years of on-site effort to resettle the islands of Bikini and Eneu. The main approaches to decontamination are those permitting resettlement if radioactive contamination is minimal with the proviso that no local foods except fish will be eaten for a specified period and the removal of contaminated soil, especially where radiological contamination is high.⁴²⁹

1984

ADMINISTRATION

The DOE terminates its resident scientific program at Enewetak because of operational and funding constraints. The DOE continues to maintain a small field station at Enewetak to support scientific trips and limited operations.⁴³⁰

31 Jan 84

**MEDICAL
PLUTONIUM
RADIATION**

While expecting the RMI to take over most of the functions and responsibilities of the NV Marshall Island Programs, the NV recommends a Marshall Islands program plan for FY 1985-1989 that recognizes that the U.S. government is responsible for the lifetime medical care for the 178 remaining individuals who were exposed to radioactive fallout from Castle Bravo. The NV also advocates continuing the dose projections for Enewetak and Bikini to support future resettlement decisions and a data bank program, a U.S. government repository for all pertinent environmental and dose assessment information. NV recommends two missions a year to study plutonium uptake of Rongelap residents and of people residing in Bikini during the 1970s.⁴³¹

10 Feb 84

ADMINISTRATION

Since last September the MPRL has not had a resident scientist at Enewetak. Although the laboratory has been inactive, the DOE has kept it maintained and operable. The USGS, with the cooperation of the DOE, is planning an expedition to Enewetak in summer 1984 that will require the use of the laboratory.⁴³²

Mar 84

RELOCATION

A complete brushing operation is initiated on Enewetak. All non-cultivated foliage will be chopped down and left to decompose to add humus to the soil and assist in maintaining moisture and providing natural nutrients.⁴³³

30 Mar 84

AGREEMENT

The President transmits the COFA to Congress.⁴³⁴

1 May 84

CLAIMS

RADIATION

RELOCATION

The people of Bikini file a class action suit against the executive branch of the U.S. government. The plaintiffs seek declaratory and equitable relief, the radiological cleanup of Bikini Atoll, the restoration of the atoll to its former condition, and speedy resettlement of the Bikini people to their atoll.⁴³⁵

3 May 84

ADMINISTRATION

DP's role in the Marshall Islands Program includes: provision of medical surveillance and care to persons accidentally exposed to radiation during the Castle Bravo test, radiological studies of the environment and monitoring of the population living on the atolls, and the logistical support of these two activities. The DOI is developing the four-atoll health plan for submission to Congress. No DP funding is involved in the development or implementation of the health plan.⁴³⁶

15 May 84

ADMINISTRATION

CONTRACTOR

PASO issues the Operations Plan, Mission Number 7, FY 1984, for a June 1984 trip to Utirik, Rongelap and Enewetak as part of the bioassay program conducted by BNL.⁴³⁷

25 May 84

ADMINISTRATION

CONTRACTOR

MEDICAL

T.T. High Commissioner Janet J. McCoy expresses gratitude to Maj. Gen. William W. Hoover, DOE deputy assistant secretary for military application, for assistance provided the T.T. administration by Roger Ray and DOE over the past three years, especially during "numerous critical phases of the Compact of Free Association approval process" before Congress.⁴³⁸

Exceeding its mandate, the BNL conducts 434 complete medical examinations of the Marshallese during its visit to the Marshall Islands under P.L. 95-134, which actually applies only to the 174 islanders affected by the 1954 Castle Bravo fallout.⁴³⁹

31 May 84

POLICY

Marshall Islands Sen. Jeton Anjain informs W.J. Stanley of PASO that his constituents "will not attend the Radiological Safety Program next time if Mr. Harry Brown, DOE/PASO will accompany the Medical team to Rongelap, Majuro, and Ebeye." (See 20 Jul 84 for the response to this letter.) According to Anjain, the Marshallese "feel that Mr. Harry Brown always treats them like they are animals, every time he gives them little food he calls them as if they are chickens..."⁴⁴⁰

15 Jun 84

MEDICAL

The DOI formulates a four-atoll health care plan planned by the office of territorial and international affairs (OTIA) and based on site visits and consultation with OTIA, DOE, DOD, and the USPHS.⁴⁴¹

5 Jul 84

RELOCATION

The DOI asks the DOE for advice on the resettlement of Eneu Island. The DOI would like to determine if Eneu Island can be resettled before the trusteeship ends.⁴⁴²

20 Jul 84

POLICY

In response to Sen. Anjain's 31 May 1984 letter, Roger Ray writes RMI President Kabua that "the allegations regarding the actions of Mr. Harry Brown are contradictory to my own observations, are in conflict with numerous complimentary reports, including comments of officials of your government, and are unsupported by specifics." Ray believes that "it would be regrettable if deserving people entitled to DOE assistance under United States public law were denied such assistance because of actions by those who, for whatever reason, seek to embarrass the Department of Energy or its duly authorized program officials." Ray states that the DOE will continue to deliver the services authorized by the U.S. Congress and will welcome the advice, recommendations, and requests from the Marshall Islands government.⁴⁴³

1 Aug 84

MEDICAL

The DOE transfers \$4 million to the DOI to fund the four-atoll health care plan.⁴⁴⁴

28 Aug 84

ADMINISTRATION

CONTRACTOR

RADIATION

Scientists at a meeting to review the dosimetric data from the Marshall Islands determine that it would be unlikely for an Eneu resident, consuming a mix of local and imported foods, to exceed an exposure of 500 mrem per year. The participants in the meeting include representatives from BNL, ORNL, Los Alamos National Laboratory (LANL), NV, LLNL, and PNL.⁴⁴⁵

The PASO issues the Operations Plan, Mission Number 8, FY 1984, for a trip to Bikini and Enewetak by the LLNL in September 1984 as part of their programs involving the sampling, measurement, and cycling characteristics of radionuclides in the soil, water, air, and biota.⁴⁴⁶

21 Sep 84

RELOCATION

MEDICAL

In a revision of a letter originally drafted by Roger Ray, DOI Secretary William Clark asks DOE Secretary Hodel if Bikinians can return to Eneu Island before the trusteeship ends.

In a draft of comments, the DOE office of policy, plans, and analysis (PE) staff recommends no resettlement because the Bikinians have already been overexposed; the Bikini resettlement doses have been repeatedly underestimated; dietary restrictions

did not work on Bikini Island; and until the Pu²³⁹ problem is resolved no recommendation or interpretation of radiological conditions should be made.⁴⁴⁷

24 Sep 84

**ADMINISTRATION
WEAPON TESTING**

The DOE and the DOD enter into a memorandum of understanding for the planning and support for Safeguard "C". Johnston Atoll will be retained for the resumption of atmospheric testing if it is needed. Nuclear research and testing programs will be conducted to maintain personnel knowledgeable about nuclear testing, and other types of experiments will also be conducted at Safeguard "C" facilities at Johnston Atoll and the Hawaiian Islands to ensure the continued availability of the facilities.⁴⁴⁸

28 Sep 84

**ADMINISTRATION
CONTRACTOR
MEDICAL**

The PASO issues the Operations Plan Number 1, FY 1985, for the October 1984 trip to Utirik, Rongelap, Ebeye, and Majuro as a part of the medical program. The program includes surveillance by BNL of Rongelap and Utirik persons exposed to fallout in 1954, monitoring of a control group of unexposed persons, and provisions for an expanded health care program.⁴⁴⁹

9 Oct 84

**CONTRACTOR
RADIATION**

LLNL completes the pyrolytic coconut processing unit and conducts preliminary runs with Bikini and control coconuts. These preliminary experiments indicate that the oil produced is relatively free of cesium¹³⁷ while the residual charcoal contains most of the element.⁴⁵⁰

17 Oct 84

**ADMINISTRATION
CONTRACTOR**

The PASO issues the Operations Plan, Mission Number 2, FY 1985, for a November 1984 trip to Bikini Atoll as part of the LLNL's program to conduct terrestrial investigations to measure and analyze radionuclides in the environment.⁴⁵¹

15 Nov 84

**ADMINISTRATION
CONGRESSIONAL RELATIONSHIP
CONTRACTOR
RADIATION
RELOCATION**

The BARC submits Report No. 1, Resettlement of Bikini Atoll: Feasibility and Estimated Cost of Meeting the Federal Radiation Protection Standards to Congress. The BARC states that the hazard of resettlement stems almost entirely from cesium¹³⁷ in the soil. The BARC concludes that Eneu may be resettled, but, depending on population size, some food may have to be imported. Bikini may be resettled only if no food is grown or ground water consumed for 80 years. The Bikini-Kili Council rejects this alternative because Bikini Island would not be decontaminated.⁴⁵²

30 Nov 84

**ADMINISTRATION
RADIATION**

To date, DP and the PE technical people cannot agree on which DOE level of radiation is an acceptable risk in regard to the resettlement of Eneu.⁴⁵³

10 Dec 84

**RADIATION
RELOCATION**

Prepared by PE for DOE Secretary Donald Hodel, a draft response to the DOI inquiry on the resettlement of Eneu Island states that the DOE is moving to implement the new ICRP and NCRP recommendations. According to the ICRP, exposures that continue year after year for a lifetime should not exceed an average of 100 mrem a year for the highest individual in any age group. The DOE can give no assurance that the resettlement of Eneu Island would be within these limitations.⁴⁵⁴

13 Dec 84

ADMINISTRATION

The office of Micronesian status negotiations (OMSN) meets on the status of the COFA with representatives from the Department of Justice (DOJ), DOD, DOE, DOI, and the Department of State. Because of pending litigation and legislation, one of the main issues discussed is the feeling of the DOJ and OMSN that any agency responding to anyone on matters of COFA should clear the response through DOJ attorneys and OMSN officials.⁴⁵⁵

14 Dec 84

RADIATION

Roger Ray, deputy director for DOE Pacific Operations informs the high commissioner of the T.T. of the results of the LLNL pyrolytic coconut processing unit experiments. An additional \$30,000 may be available for further research, and Ray suggests that the additional funding be made available through the Marshall Islands' memorandum of understanding with PASO.⁴⁵⁶

1985

**AGREEMENT
MEDICAL
RELOCATION**

In mid-1985 the DOE and the DOI issue a memorandum of understanding to pool their efforts and work jointly on the scientific programs at Bikini Atoll.⁴⁵⁷

NV determines that radiological follow-up of the exposed Rongelapese will not be continued after their relocation but that BNL medical examinations will continue.⁴⁵⁸

3 Jan 85

RADIATION

Ray disagrees with McCraw on Eneu resettlement. McCraw contends that an unexplained difference in the LLNL doses estimated for Rongelap, Bikini, and Eneu islands should be resolved before the DOE gives any more advice to DOI. Ray states that because current data from Eneu are being used to assess radiological safety, the consideration of resettlement should not be delayed.⁴⁵⁹

16 Jan - 8 Feb 85

ADMINISTRATION

Rep. Sidney Yates, chairman of the House Subcommittee on Interior and Related Agencies, asks DOE Secretary Hodel on 16 January to allow the BARC to carry out the full scope of its activities as directed by Congress. The DOE, DOI, DOJ, and OMSN attorneys take the position that involvement by DOE personnel in the activities of the BARC might be used later against the government if the lawsuit filed by the Bikinians is litigated.⁴⁶⁰

In response to Yates, DOE Secretary Hodel agrees on 8 February to the importance of a cooperative effort between the DOE and the BARC. Because he is moving to a new agency, he will bring this matter to the attention of the new DOE secretary.⁴⁶¹

Feb 85

**RADIATION
ADMINISTRATION
CONTRACTOR**

The PASO Mission Number 3, FY 1985, is conducted on Bikini Atoll as part of the LLNL's terrestrial investigations to measure and analyze radionuclides in the environment to help formulate dose assessments.⁴⁶²

12 Feb 85

ADMINISTRATION

Ray notifies Dr. W. L. Robison of LLNL, "DOE party chief," that the DOE has accepted the recommendation of the chairman of the Micronesia Interagency Group and has suspended its direct involvement with BARC until the Bikini litigation has been resolved.⁴⁶³

Mar 85

**ADMINISTRATION
CONTRACTOR
MEDICAL
RADIATION**

The BNL issues Thyroid Absorbed Dose for People at Rongelap, Utirik, and Sifo on March 1, 1954. This report concludes that the overall thyroid cancer risk estimate was in agreement with results published on the Japanese exposed at Nagasaki and Hiroshima. BNL scientists also "postulate that the major route for intake of fallout was by direct ingestion of food prepared and consumed outdoors."⁴⁶⁴

1 Mar 85

**ADMINISTRATIVE
CONTRACTOR
MEDICAL**

The PASO issues the Operations Plan, Mission Number 4, FY 1985, for a March 1985 trip to Ebeye, Majuro, Utirik, and Rongelap as part of the medical surveillance by BNL of persons exposed to fallout in 1954. The plan includes the monitoring of a control group of unexposed persons and provisions for an expanded health care program.⁴⁶⁵

13 Mar 85

**AGREEMENT
RELOCATION**

The Bikinians' suit against the U.S. is settled with the signing of the Memorandum of Agreement which, along with the COFA and the Compact Section 177 Agreement, provides the means to accomplish the rehabilitation and resettlement of Bikini Atoll. The U.S. pledges to facilitate rehabilitation and resettlement and to provide funds pursuant to the Compact Section 177 Agreement to assist resettlement. The U.S. also agrees to assist the BARC to conduct a series of surveys and studies.⁴⁶⁶

27 Apr 85

**ADMINISTRATION
CONTRACTOR
RADIATION**

The PASO issues the Operations Plan, Mission Number 5, FY 1985, for a trip to Bikini Atoll in April-May 1985 as part of the LLNL's terrestrial investigations to measure and analyze radionuclides in the environment. This effort is an integrated mission with the BARC to use the scientific work done by the LLNL to complement the BARC's task of investigating how radioactive contamination can be reduced while respecting the biological and environmental integrity of the atoll. The DOE and the DOI are working out a satisfactory arrangement for the LLNL/BARC arrangement.⁴⁶⁷

1 May 85

CONGRESSIONAL RELATIONSHIP

Representing the council and people of Enewetak before the Subcommittee on Interior of the House Committee on Appropriations, David R. Anderson of the law firm of Wilmer, Cutler and Pickering cites increasing concern that the transition from territorial status to COFA will occur without ensuring the continuation of government programs on Enewetak and without compensating the claims of the Enewetak people. According to Anderson, the most important Enewetakese concern is that the U.S. "adequately provide for the rehabilitation and resettlement of Enjebi."⁴⁶⁸

10 May 85

**AGREEMENT
MEDICAL**

The current strategy of the BNL medical program required in PL 85-134 includes an annual cancer-related examination for the exposed Marshallese.⁴⁶⁹

20 May 85

**RADIATION
RELOCATION**

In response to a DOI inquiry on the habitability of Eneu Island, the DOE advises that resettlement with reasonable care to decrease exposures, such as substituting imported food for a major portion of the local coconut product intake, would not expose individuals beyond the range established by ICRP of 100 mrem a year for life-long exposure.⁴⁷⁰

21 May 85

**CONTRACTOR
MEDICAL
RADIATION**

An outline of the Marshall Islands program lists BNL responsible for medical, radiation safety, and dose reassessment; the LLNL responsible for radioecology

studies, radiation dose assessment, and a radiological data bank; and H&N responsible for general support.⁴⁷¹

22 May 85

**RADIATION
RELOCATION**

Because of a fear of lingering contamination, 327 Rongelapese move from Rongelap to Mejato Island, Kwajalein Atoll. Ray states that radiation levels on Rongelap pose no health problems. McCraw protests that the DOE did not correct the erroneous high exposure prediction for the Rongelapese in the 1982 Marshallese/English booklet.⁴⁷²

20 Jun 85

**RADIATION
RELOCATION**

Michael Wygant, a Department of State status liaison officer on Saipan; DOE; and U.S. military officials visit the Rongelapese on Mejato Island. The Rongelapese express their displeasure with Mejato Island. Although the Rongelapese publicly state that their new residence is permanent, the U.S. government visitors find indications that this may not be a permanent move.⁴⁷³

22 Jul 85

**RADIATION
RELOCATION
ADMINISTRATION**

Analyzing the May 1985 Rongelap Atoll evacuation, McCraw traces the beginning of the situation to the 8-9 December 1982 meeting at Majuro Atoll on the results of the 1978 survey. At this meeting the Rongelap people were told to make their own decisions regarding the consumption of food. Next BNL measurements of whole body exposures in 1982 and 1983 revealed an increase partially caused by the increased consumption of food from more contaminated islands at Rongelap. McCraw believes that "this appears to have been a profoundly disturbing experience for some Marshallese and an action that undermines confidence in DOE and in the United States Government....The Rongelap people followed the advice they were given, made the judgment not to accept the risk, and left their atoll." As for the transfer of the Marshall Islands program to DP, McCraw believes that "DP's interest in the program appears to have primarily the altruistic interests of one person who wanted to change radiological rules used in the Marshalls, rules that were causing hardships through the loss of contaminated land. EP's ignoble interest in transferring the program to DP was apparently to get rid of a hot potato, and had nothing to do with Safeguard C."⁴⁷⁴

Aug 85

RADIATION

Reflecting a change in the DOE radiation protection policy, William Vaughan signs a memorandum that states, "It is DOE policy to follow the guidance of the National Council on Radiation Protection and Measurements (NCRP) to the fullest extent practicable...." Previously radiation standards were derived from federal requirements recommended by the Federal Radiation Council (FRC) and approved by the President.⁴⁷⁵

2 Aug 85

**ADMINISTRATION
CONTRACTOR**

The PASO issues the Operations Plan, Mission Number 7, FY 1985, for an expedition to Enewetak on 7-21 August 1985 by the Marine Science Institute of the University of California at Santa Barbara (UCSB) to study crustaceans through the University of Hawaii's Institute of Marine Biology (HIMB), funded by the DOE.⁴⁷⁶

5 Aug 85

**ADMINISTRATION
CONTRACTOR**

The PASO issues the Operations Plan, Mission Number 8, FY 1985, for an August 1985 trip to Enewetak, Kili, and Majuro as part of BNL's urine bioassay program.⁴⁷⁷

Oct - Nov 85

**CONTRACTOR
MEDICAL**

During the BNL medical team visit to RMI the team makes its first visit to Mejato to examine the Rongelapese who moved there in May 1985. The scientists determine that more children than usual were not maintaining their position on the growth charts. After comparing the growth curves with similar charts of Utirik children, the team suggests possibility of childhood malnutrition.⁴⁷⁸

10 Dec 85

LEGAL RESPONSIBILITY

The RMI requests that upon the enactment of U.S. legislation to implement the COFA that the DOE continue the radiological health program for certain people of Rongelap and Utirik and USDA continue agriculture and food programs for the people of Bikini and Enewetak.⁴⁷⁹

13 Dec 85

**ADMINISTRATION
AGREEMENT
LEGAL RESPONSIBILITY**

Congress passes P.L. 99-239, which includes approval of the COFA.⁴⁸⁰

According to Harry Brown of the NV, the major provisions of interest to the DOE in the COFA are:

- The payment under subsection 177;
- The provision of special medical care to the exposed peoples of Rongelap and Utirik;
- Unreimbursed technical and other assistance for the first five years after the effective date for the agricultural maintenance and food programs for the Enewetakese and Bikinians and waterborne transportation of agricultural products to Enewetak;
- The RMI use of section 177 funds to contract with qualified scientists to review DOE data on the habitability of Rongelap;
- A report within a year, upon the request of the RMI, on the time and circumstances for resettlement of Enjebi; and
- The U.S. commitment to restore Bikini Atoll and funding authorization.⁴⁸¹

23 Dec 85

**ADMINISTRATION
AGREEMENT**

The DOE recognizes goals included in the passage of the COFA: the espousal of claims against the U.S. by the RMI government for damage and injuries resulting from nuclear testing and designation of the U.S. president as the official responsible for deciding which cabinet-level secretary should be responsible for the radiological health care of the Marshallese.⁴⁸²

14 Jan 86

**AGREEMENT
LEGAL RESPONSIBILITY**

President Ronald W. Reagan signs P.L. 99-239. (DOE responsibilities outlined in P.L. 99-239 are addressed throughout the chronology.) Issues are addressed that are implemented through the Section 177 agreement. The act concerns such matters as the restoration of the habitability of Rongelap Island and the review of the DOE's data collected on radiation on Rongelap, Enjebi Island resettlement, and Bikini Atoll cleanup. The act declares that it is the policy of the U.S. to fulfill its responsibility to restore Bikini Atoll to habitability and authorizes appropriation of the funds necessary to implement the settlement agreement in *The People of Bikini, et al. vs. the United States of America*.⁴⁸³

15 Jan 86

**ADMINISTRATION
CONTRACTOR
MEDICAL**

The current Marshall Islands programs include medical programs conducted by the BNL, environmental sampling and the DOE assessments by the LLNL, bioassay monitoring by BNL, and logistical support provided by the PASO through H&N.⁴⁸⁴

21-25 Jan 86

**ADMINISTRATION
AGREEMENT**

Harry Brown travels to Majuro, Enewetak, and Kwajalein to orient PASO Director Joseph H. Dryden with the area. At Majuro Brown and Dryden discuss approval of the COFA, and at Enewetak the DOE role at Enewetak under the COFA.⁴⁸⁵

6 Feb 86

**ADMINISTRATION
CONTRACTOR
RADIATION**

The PASO issues the Operation Plan, Mission Number 3, FY 1986, for a February-March 1986 LLNL/BARC trip to Bikini Atoll and a LLNL trip to Enewetak and Rongelap atolls for terrestrial investigations to measure and analyze radionuclides and the formulation of dose assessments to individuals. The LLNL and the BARC have agreed to collaborate on scientific field work on Bikini under the DOE sponsorship.⁴⁸⁶

Mar - Apr 86

**ADMINISTRATION
CONTRACTOR
MEDICAL**

The BNL medical team conducts medical examinations for 353 adults in the Marshall Islands.⁴⁸⁷

22 May 86

**ADMINISTRATION
CONTRACTOR
LEGAL RESPONSIBILITY**

The MIPG issues Recommendations on Post Compact of Free Association Programs by U.S. Department of Energy Relative to Post Nuclear Testing in the Marshall Islands that includes recommendations on certain DOE programs after the termination of the trusteeship. The MIPG recommends that the DOE continue to provide the special health care programs to those exposed to Castle Bravo and complete environmental assessments and dose predictions for the next three years to meet COFA commitments. After three years technical assistance will be available to the RMI on a reimbursable basis. BNL proposes to analyze urine samples for plutonium by using the new fission track etch technique. According to Harry Brown, LLNL researchers have questioned the reliability of this method.⁴⁸⁸

late May 86

**ADMINISTRATION
CONGRESSIONAL RELATIONSHIP
MEDICAL
RADIATION
RELOCATION**

Representatives of BARC, LLNL, PASO, H&N, and NV visit Bikini Atoll to orient congressional staff to DOE/BARC work at Bikini. At a 28 May 1986 meeting requested by the Bikinians the congressional and DOI staffs express the desire for DOE to finish experiments that will lead to decisions on the cleanup.⁴⁸⁹

Jul 86

ADMINISTRATION

Because of the impending termination of the T.T. government the DOE makes a field visit to the field station in Enewetak to review operations, initiate rollup activities, and to discuss matters and plans with the Enewetak Council.⁴⁹⁰

18 Jul 86

**AGREEMENT
CONTRACTORS**

To protect the Enewetak people, DOE/NV and DNA sign an agreement for monitoring the Cactus Crater Storage Structure, which contains radiologically contaminated soil and debris on Runit Island, Enewetak Atoll. The DOE/NV will provide the services of its contractors to monitor the storage facility, and the DNA will reimburse the DOE/NV for routine and special monitoring.⁴⁹¹

21 July 86

**ADMINISTRATION
AGREEMENT
RADIATION
RELOCATION**

The U.S. and the RMI sign an agreement on the resettlement of Enjebi Island. Under the agreement, the Marshall Islands government requests the U.S. to monitor the radiation and other conditions on Enjebi and report back to the Marshall Islands government within a year. The U.S. report will address the question of if and when the U.S. can arrange for the Enjebi people to resettle safely at Enjebi. If Enjebi can be resettled, the report will explain how the radioactive contamination there, including that from consumption of locally grown food, can be reduced or controlled to meet whole body federal radiation protection standards for the general population. Under the agreement, if Enjebi can be resettled within 25 years of the enactment of P.L. 99-239, the Enjebi Community Trust Fund can be used for community development. If Enjebi cannot be resettled within that time, the agreement calls for the trust fund to be used for resettlement elsewhere of the Enjebi people. The RMI requests the Enjebi monitoring, and the DOE agrees that by 20 July 1987 a report will be made.⁴⁹²

The U.S. and the RMI sign an agreement to assure that lands on Ejit Island remain available for use by the people of Bikini until Bikini is restored and inhabitable.⁴⁹³

The U.S. and the RMI sign an agreement regarding the implementation of U.S. economic assistance, programs, and services provided in COFA.⁴⁹⁴

Aug 86

**CONTRACTOR
RELOCATION**

H&N and members of the Bikini Planning Council conduct a fact-finding visit to Bikini Atoll to inspect Eneu Island and existing facilities and to develop preliminary design concepts for the base facilities and the most cost-efficient way to develop them.⁴⁹⁵

28 Aug - 13 Sep 86

**CONTRACTOR
MEDICAL**

The BNL medical team on a mission to Kwajalein, Uterik, Mejato, Ebeye, and Majuro conducts follow-up examinations of the Marshallese.⁴⁹⁶

5 Sep 86

**ADMINISTRATION
CONTRACTOR**

In the DOE briefings and discussions with the RMI the current Marshall Islands medical, environmental, bioassay, and logistics support programs are outlined.⁴⁹⁷

30 Sep 86

**CONTRACTOR
MEDICAL**

Edward T. Lessard of BNL presents "Review of Marshall Islands Fallout Studies," which summarizes the various studies that have been conducted to determine the level of radiological exposures to the Marshallese.⁴⁹⁸

FY 87, 88, 89

**AGREEMENT
CONTRACTOR
LEGAL RESPONSIBILITY**

The Marshall Island dose assessment and environmental programs respond to the requirements stated in COFA. The three relevant requirements are: a review of the Rongelap dose assessments and restoration for rehabilitation of Rongelap, if required; a dose assessment of Enjebi Island; and recommendations on resettlement and rehabilitation of Bikini Atoll. The LLNL conducts most of these tasks.⁴⁹⁹

10 Oct 86

AGREEMENT

The agreement for implementation of the COFA is signed by the U.S. and the RMI⁵⁰⁰

15 Oct 86

**CONGRESSIONAL RELATIONSHIP
LEGAL RESPONSIBILITY**

The DOI and the DOE are directed to develop a plan for providing federal funding for the continuing activities of the LLNL and the BARC on Bikini Atoll after FY 1987. A report on this plan must be submitted to the House and Senate Committees on Appropriations by 1 February 1987.⁵⁰¹

21 Oct 86

AGREEMENT

The COFA becomes effective.⁵⁰²

10-15 Nov 86

**ADMINISTRATION
CONTRACTOR**

The purpose of this DOE and H&N trip to Enewetak and Bikini is to discuss with the Enewetak community the uncertainties of the DOE's Marshall Islands program beyond FY 1987; to suggest that the DOI and Enewetak look for alternatives to the DOE/H&N for food and agriculture; and to evaluate LLNL/BARC progress at Bikini in radiological assessment.⁵⁰³

14 Nov 86

**CONGRESSIONAL RELATIONSHIP
LEGAL RESPONSIBILITY
MEDICAL**

In P.L. 99-658 Congress approves and provides for U.S. interpretation of the COFA. Congress directs the DOE and the DOI to submit a report to the House and Senate Committees on Appropriations each fiscal year that will detail how funds were spent during the previous fiscal year for the special medical care and logistical support programs for Rongelap and Utirik and for the agriculture and food programs for Enewetak and Bikini. The reports should also specify anticipated needs regarding these programs. Congress states that these programs represent "special and continuing moral commitments of the United States which will be annually funded to the extent of the need of the populations of such atolls for such assistance."⁵⁰⁴

1987

AGREEMENT

The first compensation payments are made to the people of Bikini, Enewetak, Utirik, and Rongelap as outlined in Section 177 subsidiary agreement of COFA.⁵⁰⁵

Jan 87

**CONTRACTOR
RELOCATION**

H&N issues an engineering study associated with the first phase of final resettlement of the Bikini people. Rehabilitation and resettlement is expected to be completed by the mid-1990s. The resettlement program began after the BARC determined that the Eneu Island on Bikini Atoll is safe for human habitation.⁵⁰⁶

20 Feb 87

**CONGRESSIONAL RELATIONSHIP
CONTRACTOR
LEGAL RESPONSIBILITY
MEDICAL**

The DOE/DP reports to the House Committee on Appropriations, as required by P.L. 99-658, detailing how funds were spent in 1986 on the medical program for Rongelap and Utirik. The medical department of BNL has responsibility for the program. The DOE provides or arranges for logistical support, and all missions include a representative from the DOE. Two ship-supported medical missions were carried out in FY 1986.⁵⁰⁷

2-9 Mar 87

**MEDICAL
RADIATION**

Harry Brown travels to Honolulu and Majuro to discuss with RMI officials the four-atoll health plan and the independent review of DOE's assessment of Rongelap.⁵⁰⁸

30 Mar 87

MEDICAL

The NV health, physics, and experimental division (HPE) recommends that the LLNL dosimetry predictions be used in the resettlement decisions of the Marshall Islands and that the BNL fission track etch technique be developed and validated to measure plutonium levels in urine. These decisions are based on recommendations and comments of Marshall Islands Dosimetry Review Group (MIDRG) and consultants from LLNL and BNL.⁵⁰⁹

6 Apr 87

RADIATION

The RMI seeks assistance from the National Academy of Sciences (NAS) in identifying an individual or organization to review the data collected by the DOE and the resulting conclusions concerning radiation levels and other conditions at Rongelap.⁵¹⁰

22 Apr 87

**RADIATION
RELOCATION**

John Sieg of the National Research Council of the National Academy of Sciences (NRC/NAS) asks Tommy McCraw of DOE about the Rongelap situation and

the amount of available information because the Rongelapese have requested the NRC/NAS to advise them on whether they can safely return to Rongelap Atoll.⁵¹¹

27 Apr - 23 May 87

**MEDICAL
CONTRACTOR**

The BNL conducts its annual medical mission to Kwajalein/Ebeye, Majuro, and Uterik. During this trip town meetings are held prior to the examinations to describe the work and answer questions.⁵¹²

30 Apr 87

RADIATION

In comments on the DOE draft order, DOE 5480.XX, "Radiation Protection of the Public and the Environment," Tommy McCraw questions the new policy that would create DOE radiation protection standards "consistent with the recommendations of the NCRP and the ICRP and the guidance and standards issued by EPA." McCraw believes that, "the Department needs Federal Regulations that have been approved at the highest levels, not recommendations lifted from ICRP and NCRP reports." He recommends that the introductory statement for DOE radiation policy should be: "DOE implements the Federal radiation protection policy and regulations recommended by the EPA and approved by the President for the protection of the public and environment. DOE operations will be considered to be in compliance with radiation protection requirements when basic Federal regulations are met."⁵¹³

15 May 87

**ADMINISTRATION
CONTRACTOR
MEDICAL**

The DOE proposes to provide and fund in FY 1988 and beyond the medical program for the Marshallese exposed to fallout in the 1954 test Castle Bravo.⁵¹⁴

20 May 87

**MEDICAL
RADIATION**

Tommy McCraw urges that the DOE should correct its own mistakes and develop a Marshallese/English report that presents the correct information on Rongelap exposures, "one that places this information in proper perspective using radiation standards with emphasis on the continuing need for restrictions on northern island foods," as well as providing information on medical issues.⁵¹⁵

10 Jun 87

**ADMINISTRATION
CONTRACTOR
MEDICAL
PLUTONIUM
RADIATION**

An external review of the LLNL's Marshall Islands dosimetry, conducted by the Marshall Islands Dosimetry Group (MIDG), finds that the dosimetry is appropriate and that the BNL technique for plutonium bioassay is worthy of continued support. HPE established MIDG to assess this program.⁵¹⁶

1 Jul 87

**ADMINISTRATION
CONTRACTOR
RADIATION**

The PASO issues Operations Plan 87-5, Mission Number 5, FY 1987, for an August 1987 LLNL/BARC trip to Enewetak and Bikini Atolls as part of their terrestrial investigations.⁵¹⁷

10 Jul 87

**ADMINISTRATION
AGREEMENT**

DOI Order Number 3119 delegates the authority of the Secretary of the Interior for the T.T. to the assistant secretary, territorial and international affairs, who will guarantee that all obligations and responsibilities under the 1947 trusteeship are fulfilled.⁵¹⁸

24 Jul 87

**ADMINISTRATION
AGREEMENT**

The DOE agrees to provide assistance to the DOI and the BARC for the Enewetak food-related programs and the BARC work at Bikini.⁵¹⁹

Aug 87

**CONTRACTOR
RADIATION**

The RMI contracts with Dr. Henry Kohn, chairman of the BARC, to review the 1982 DOE report on the risks of resettling Rongelap and to assess the adequacy of the data on which the report was based.⁵²⁰

1 Aug 87

**RADIATION
CONTRACTOR**

H&N reports that the Runit concrete dome's structural integrity is not impaired and there are no radiation leaks.⁵²¹

7 Aug 87

MEDICAL

The Journal of the American Medical Association (JAMA) publishes, "Thyroid Neoplasia in Marshall Islanders Exposed to Nuclear Fallout," by Thomas E. Hamilton, Gerald van Belle, and James P. LoGerfo from the University of Washington. Using results from examinations of 7,266 Marshallese from 14 atolls, including southern atolls, the authors studied the risk of thyroid neoplasia in Marshall Islanders exposed to radioiodines from Castle Bravo. Their study reveals that "an excess of thyroid nodules was not limited only to the two northern atolls but extended throughout the northern atolls; this suggests a linear dose-response relationship."⁵²²

25 Aug 87

**RADIATION
RELOCATION**

The RMI announces the selection of Dr. Henry I. Kohn to conduct the reassessment of the 1982 report.⁵²³

27 Aug 87

**ADMINISTRATION
AGREEMENT
CONTRACTOR
MEDICAL**

The PASO issues Operations Plan, Mission Number 87-6, for a September-October 1987 trip to Ebeye, Majuro, Utirik, and Mejato as part of medical surveillance by BNL on people exposed during Castle Bravo. This will be the fifth visit to the Rongelapese on Mejato Island, Kwajalein Atoll.⁵²⁴

To enable the DOE to withdraw as soon as possible from the DOE Enewetak annual food supply, agricultural, and other rehabilitation programs, the DOE aims to train local personnel and set up a system in which the Marshallese operate the programs. The DOI will request \$2,149,900 worth of work through a support agreement made by the DOE. The funds will provide agricultural clearing and fertilization, special studies, a Bikini dock design, and a plan for Eneu.⁵²⁵

Sep 87

**MEDICAL
CONTRACTOR**

BNL conducts a follow-up medical trip to conduct examinations for the exposed people of Rongelap and Utirik.⁵²⁶

21 Sep 87

ADMINISTRATION

Representatives of the RMI, the U.S. government, and the Enewetak local government council discuss the five-year continuation of the Enewetak agriculture and food program and establish a working group to develop recommendations for the U.S. Congress regarding this program in FY 1989 and beyond.⁵²⁷

1 Oct 87

**AGREEMENT
MEDICAL
RADIATION**

The DOI reaches an understanding with the RMI that the target for a full takeover of the Enewetak programs will be by the end of FY 1989. The food, agricultural, and other programs will be turned over to the Enewetak government by the end of FY 1988.⁵²⁸

5 Oct 87

**ADMINISTRATION
CONTRACTOR**

The PASO issues Operations Plan 88-1, which outlines a wato, or family landholding, line survey to identify, mark, and record all wato lines on Bikini by H&N from 19-26 October 1987.⁵²⁹

12 Oct 87

**ADMINISTRATION
CONGRESSIONAL RELATIONSHIP
CONTRACTOR
RADIATION**

The PASO issues Operations Plan 88-2, Mission Number 2, FY 88, for a November-December 1987 trip to Bikini, Rongelap, and Majuro by the LLNL to

conduct terrestrial investigations and to measure and analyze radionuclides in the environment. The BARC will collaborate on the scientific field work at Bikini.⁵³⁰

14 Oct 87

**ADMINISTRATION
AGREEMENT
CONTRACTOR
MEDICAL
RADIATION**

The DOE's positions on Bikini scientific programs are as follows: the medical program will continue for the next several years and will include monitoring; the radiological safety program conducted by BNL is important to verify predictions of exposure to returning Bikinians; and a LLNL environmental program "follow-on" program is necessary to monitor exposures in relationship to the predictions.⁵³¹

A memorandum of understanding between the DOE and the Section 177 Health Plan, authorized in the COFA, insures that health care and services are provided to the Marshallese exposed to nuclear testing in a unified, coordinated, and unduplicated manner. The Section 177 Health Plan is the health care program for the Marshallese authorized under P.L. 96-205 of 12 March 1960. No portion of the understanding can be implemented without the review and concurrence of the RMI Secretary, Ministry of Health Services.⁵³²

14 Oct 87

**ADMINISTRATION
RADIATION
MEDICAL**

The MIPG reaches a consensus that the whole body/urine analysis program must be conducted for several years to determine dose predictions for Bikinians and the Enjebi people.⁵³³

10 Nov 87

CLAIMS

The U.S. Claims Court dismisses three claims cases, *Juda vs. U.S.*, *Peter vs. U.S.*, and *Nitol vs. U.S.* The Court holds that the COFA withdrew the consent of the U.S. to be sued for claims of the Marshall Islanders arising from the nuclear testing program.⁵³⁴

16 Nov 87

**CONTRACTOR
MEDICAL
RADIATION**

The DOE advocates a whole body counting/urine analysis program for people returning to work and live on Bikini Atoll. BNL and the LLNL draft five-year plans for the continuation of the medical and environmental programs on Bikini.⁵³⁵

1 Dec 87

ADMINISTRATION

The DOE is not budgeting for Bikini work beyond FY 1988 on the basis that a resettlement plan and appropriations should include the programs as part of the overall effort.⁵³⁶

1988

**RADIATION
CONTRACTOR**

Anant R. Moorthy, Carl J. Schopfer, and Sujit Banerjee of BNL publish, "Plutonium from Atmospheric Weapons Testing: Fission Track Analysis of Urine Samples." This article concerns a more accurate technique for measuring plutonium in urine and describes the analyses of Marshallese urine samples for plutonium levels that began at BNL in 1983. When analyzed with the 1983 method, Photon Electron Rejection Alpha Liquid Scintillation Counting, the samples appeared to contain higher rates of plutonium than when analyzed with the more accurate 1986 fission track analysis. According to BNL, earlier high plutonium results from urinalyses of Marshallese resulted also from contamination during collection. With the new method BNL expects to satisfy islanders' plutonium concerns.⁵³⁷

7 Jan 88

**ADMINISTRATION
CONTRACTOR
RADIATION
RELOCATION**

The LLNL recommends potassium treatment of the soil for the uptake of cesium¹³⁷ in the northern Marshall Islands.⁵³⁸

The DOE/NV and the DOI sign an amendment number one to a memorandum of agreement for the establishment of a base camp at Bikini Atoll. This amendment revises the scope of work for the Bikini Atoll Resettlement Project to allow DOE to hire an independent scientific consultant to review the work and provides the DOI with strengthened oversight and accountability for the funds.⁵³⁹

12 Jan 88

**ADMINISTRATION
MEDICAL**

The office of emergency response and program analysis is established as part of a NV reorganization. Harry Brown, Marshall Islands program manager, is designated deputy project manager of that office. This move necessitates a review of NV's management responsibility of the DOE's Marshall Islands programs. Brown retains his position as Marshall Islands program manager overseeing the BNL and the LLNL efforts. He is also designated the principal contact point for policy matters with the headquarters program office, other federal agencies, and the RMI government. The PASO is to participate more actively in policy making.⁵⁴⁰

Representatives of the DOE and the 177 Health Plan sign a memorandum of agreement that describes the various medical responsibilities of each organization, including the individuals eligible for each program; the coordination of medical referrals; and the exchange of medical information.⁵⁴¹

26 Jan 88

RELOCATION

Sens. James A. McClure and Bennett Johnston write to President Ronald W. Reagan to express concern over the Bikini Atoll cleanup and resettlement. To fulfill the U.S. commitment, McClure and Johnston urge that the President "seize this opportunity and work closely with the Bikinians on developing a plan, as anticipated under the 1985 settlement, to meet our government's commitments and to resolve ongoing or potential litigation."⁵⁴²

16 Feb 88

ADMINISTRATION

Because of the obligations of the U.S. under the COFA, there is uncertainty regarding the state of the Marshall Islands programs, according to Brown, deputy program manager of the DOE office of emergency response and analysis. He recommends that NV should continue as program planner and overseer and that PASO should have an increased role.⁵⁴³

Mar - Apr 88

**ADMINISTRATION
CONTRACTOR
RADIATION**

The PASO issues Operations Plan 88-4, Mission Number 4, FY 88, for a March-April 1988 trip to Enewetak and Bikini by the LLNL to conduct terrestrial investigations and to measure and analyze radionuclides. The BARC will collaborate on the scientific field work at Bikini.⁵⁴⁴

11 Mar 88

**RADIATION
MEDICAL
CONTRACTOR**

The BNL's approach to determining the body count of Pu²³⁹ in Rongelap and Bikini people is to collect and analyze urine samples. BNL scientists interpret the plutonium levels after accounting for exposure patterns. Edward T. Lessard of BNL suggests that "the focus of the program should be to attempt to develop estimates of annual intake for each age group based on excretion of Pu²³⁹." Lessard urges that urine sampling begin immediately of former residents of Bikini and Rongelap before they return to their former islands.⁵⁴⁵

Apr 88

**CONTRACTOR
RELOCATION**

H&N issues a preliminary plan for the rehabilitation and resettlement of Rongelap Atoll.⁵⁴⁶

15 Apr 88

**ADMINISTRATION
CONTRACTOR
RADIATION**

According to Harry Brown, DOE/NV, the DOE does not plan to fund a field effort for the LLNL in the Marshall Islands beyond FY 1988. The DOE also recommends a scaled-down field and analysis effort at Bikini and Enewetak for the next few years and is willing to provide technical assistance to the RMI on a reimbursable basis.⁵⁴⁷

20 Apr 88

**CONTRACTOR
PLUTONIUM
RADIATION
RELOCATION**

In his Rongelap reassessment study, Kohn concludes that Rongelap Island may be resettled if certain conditions are met. The study also states that the measurement of plutonium excretion in the urine of Rongelapese shows a great variation and

should be studied further and that radiation doses of infants and small children are of potential concern.⁵⁴⁸

28 Apr 88

**CONTRACTOR
MEDICAL
RADIATION**

According to the BNL's director of the Marshall Islands medical program, by providing operating funds, the DOE has permitted an extension of the medical program to cover many aspects of health care unrelated to radiation exposure and to offer medical services to a great number of unexposed persons.⁵⁴⁹

29 Apr 88

**MEDICAL
CONTRACTOR**

During the BNL spring missions to the Marshall Islands a 177 Health Plan physician accompanies the medical team as part of a joint effort, but no DOE liaison officer is present.⁵⁵⁰

1 Jul 88

**ADMINISTRATION
CONTRACTOR
RADIATION**

The PASO issues Operations Plan 88-5, Mission Number 5, FY 1988, for an August 1988 trip to Bikini and Rongelap by the LLNL to conduct terrestrial investigations and to measure and analyze radionuclides in the environment. The BARC will collaborate on the scientific field work at Bikini.⁵⁵¹

22 Jul 88

RELOCATION

The BARC concludes that on the basis of current federal guidelines Eneu Island may be resettled and can serve as the base of operations for the rehabilitation of Bikini Island.⁵⁵²

1-26 Sep 88

**CONTRACTOR
MEDICAL**

BNL conducts a sampling bioassay mission to Rongelap and Utirik.⁵⁵³

14 Sep 88

**CONTRACTOR
PLUTONIUM
RADIATION**

Bernd Franke, a consultant of Kohn's for the Rongelap Reassessment Project, writes RMI Senator Hiroshi Yamamura to make him aware of the problem of plutonium levels in urine of the Rongelapese. Franke believes that the plutonium concentrations on Utirik should be reinvestigated.⁵⁵⁴

23 Sep 88

**AGREEMENT
MEDICAL**

The DOE officials propose that for FY 1990 the RMI provide matching funds of \$2 million. Combined DOE and RMI funding would pay for whole body counting

and bioassay medical studies; environmental assessments of the long-range effectiveness of the preventive technologies used at Bikini Atoll; logistical support for the DOE operations; and a program of radiological education.⁵⁵⁵

FY 1989

**CONTRACTOR
MEDICAL
RADIATION**

The Marshall Islands program includes medical surveillance provided by the BNL, environmental studies conducted by the LLNL, and whole body counts and other bioassay procedures pertaining to the Rongelap and Utirik people by the BNL.⁵⁵⁶

Oct 88

**CONGRESSIONAL RELATIONSHIP
RADIATION**

A House concurrent resolution is introduced in the U.S. House of Representatives stating that it is the sense of the House that funds be appropriated for the phase 2 comprehensive radiation and health study at Rongelap Atoll.⁵⁵⁷

7 Oct 88

**AGREEMENT
MEDICAL**

The RMI states that it is not in a position to match the funds for the DOE programs in FY 1990. Out of concern for the well-being of the people of Bikini, Enewetak, and Rongelap, the RMI hopes that the U.S. government will obtain sufficient funding.⁵⁵⁸

21 Oct 88

**CONGRESSIONAL RELATIONSHIP
RELOCATION**

Reps. Miller and Udall and Del. de Lugo submit House Congressional Resolution 395 that expresses the sense of Congress regarding the habitability of Rongelap Atoll. The resolution concludes that the DOE and the DOI should make funds available to the RMI to contract for a comprehensive study of the habitability of Rongelap.⁵⁵⁹

26 Oct 88

RADIATION

In response to a RMI request to provide recommendations as to how to decrease the uptake of cesium¹³⁷ in food crops, the DOE suggests applying 1200 pounds per acre of potassium chloride. This process is used on Eneu through the DOI.⁵⁶⁰

2 Nov 88

RADIATION

In a draft proposal the DOE outlines a radiological education program for the Marshallese.⁵⁶¹

1 Dec 88

**ADMINISTRATION
CONTRACTOR
MEDICAL
RADIATION**

The DOE has conducted two ship-supported medical missions in FY 1988. The FY 1989 program is similar in scope to the past year.⁵⁶²

8 Dec 88

CLAIMS

The U.S. Court of Appeals sustains the U.S. Claims Court dismissals of Peter vs. U.S. and Nitol vs. U.S. in ruling on the People of Rongelap and other Marshall Islands vs. U.S. The claimants in Juda vs. U.S. also appeal but move to dismiss the suit following the enactment of special legislation which appropriates funds for the Bikini people.⁵⁶³

23 Jan 89

**MEDICAL
CONTRACTOR**

The BNL issues Medical Status of Marshallese Accidently Exposed to 1954 Bravo Fallout Radiation: January 1985 through December 1987, which reports no significant difference in the survival rates among the exposed Rongelapese and Utiirikese and unexposed Rongelapese.⁵⁶⁴

Feb 89

RADIATION

The LLNL's study, Estimates of Radiological Dose from Ingestion of C-137 and Sr-90 to Infants, Children, and Adults in the Marshall Islands, concludes that the estimated integral dose equivalent for adults is a conservative estimate for infants and children.⁵⁶⁵

17 Feb - 9 Mar 89

**ADMINISTRATION
RADIATION
RELOCATION**

Harry U. Brown of NV recommends on 17 February that a meeting with Rongelap representatives state that the DOE should take no official position on phase 2 because, according to the law, the reassessment of the habitability of Rongelap Island is RMI's responsibility. Further, he asserts, "We maintain Rongelap Island is habitable..."⁵⁶⁶

At the 8 and 9 March meeting of officials of Rongelap, the RMI, and the DOE to foster better relations and discuss the resettlement of Rongelap, the DOE's positions are that Rongelap is radiologically safe and that the dose assessments are correct as stated at the meeting. The RMI Sen. Anjain expresses his desire for another opinion regarding the habitability of Rongelap.⁵⁶⁷

Mar 89

**ADMINISTRATION
CONTRACTOR
MEDICAL
RADIATION**

The FY 1990 program includes medical surveillance of the individuals exposed to nuclear testing, various environmental studies, and whole body counting and other

bioassay procedures pertaining to the Rongelap and Utirik people. The projected FY 1991 program continues the medical program and the whole body counts and bioassay procedures only to a level of basic capability but includes no additional environmental field work unless the RMI requests and funds such work.⁵⁶⁸

1 Mar 89

**PLUTONIUM
RADIATION
RELOCATION**

In an amended version of his Rongelap Reassessment Project Report, Kohn concludes that Rongelap Island is safe for habitation by adults if the diet consists of local and imported foods. He also recommends that the plutonium excretion in the urine should be studied because of great variations in the measurements of Rongelapese.⁵⁶⁹

8-9 Mar 89

ADMINISTRATION

A DOE/Rongelap meeting is held to foster better relations and discuss issues relative to the resettlement of Rongelap.⁵⁷⁰

14 Mar - 14 Apr 89

**MEDICAL
CONTRACTOR**

During the BNL medical mission to the Marshall Islands the DOE also holds informational meetings for the Marshallese prior to their medical examinations.⁵⁷¹

23 Mar 89

**ADMINISTRATION
CONGRESSIONAL RELATIONSHIP
RADIATION**

Oscar de Brum, the RMI Chief Secretary, writes to Rep. Samuel B. Thomsen to request technical assistance from the DOE to outline options and costs for conducting a nationwide survey of radiological conditions. EG&G later conducts this feasibility study.⁵⁷²

Apr - May 1989

**RADIATION
RELOCATION**

In April the DOE publishes Talleb In Jet Melele Ko Kin Enjebi. Enjebi Information Summary. Kemelelen Enjebi Island Dose Assessment Ilo Kajin Majol Im Ukot Ilo Kajin English An Interpretation in the Marshallese Language (with English Translation) of UCRL 53805 Enjebi Island Dose Assessment. The summary is an instructional and briefing aid for the people of Enjebi regarding the resettlement of Enjebi Island.⁵⁷³ This work is a report in layman's language of LLNL studies by William Robison and associates of potential radiation doses to people living on Enjebi. Roger Ray, retired from the DOE, has written the text in layman's language with the assistance of Alice Buck, an American fluent in Marshallese, and two Marshallese. The document explains that

The Enjebi people can eat food from the food-bearing trees on Enjebi; however, it would be good for about half of the food they eat to come from other islands...and from boats or airplanes that bring food. If the Enjebi people want to eat only food from Enjebi...the amount of radiation they will receive will be more, unless they wait 30 years to resettle.⁵⁷⁴

7 Apr 89

**ADMINISTRATION
CONGRESSIONAL RELATIONSHIP
MEDICAL
RADIATION**

DP submits a report to Congress, as required by P.L. 100-371, that outlines DOE's health and environmental programs for 1989-1991. The programs will continue at their current level until 1991. In FY 1991 the medical program will function at its current level until it can be integrated into the Marshall Islands health care program; the environmental studies will be concluded and no additional field work will be conducted; and the radiological safety program will be continued only at a level of basic capability.⁵⁷⁵

12 Apr 89

**AGREEMENT
RADIATION**

P&D Technologies issues to the Rongelap Atoll local government a recommended phase 2 work plan for a comprehensive and independent radiation study of the Rongelap Atoll as set forth in P.L. 99-239 and the COFA. The report addresses unresolved health, radiation, and habitability issues raised by the Rongelap people, such as uncertainty about their health; lack of information about radiation levels throughout the atoll; the issue of plutonium in their bodies; conflicting U.S. policies about food; uncertainty about the habitability of Rongelap for children; confusion about the map in the 1982 DOE radiation report; the DOE use of averages in its reports and studies; confusion about radiation dose guidelines; and uncertainty about the future economy of Rongelap. It sets forth a work plan focusing on the preparation of personal medical record files; a baseline health survey; a radiological survey; a bioassay sampling, monitoring, and diet survey; dose assessment; an economic and environmental study, sociological/cultural support; and recommended decontamination and resettlement strategies. The plan calls for access to and use of the DOE data with the DOE assistance and involvement but with control and direction of the study completely independent of the DOE.⁵⁷⁶

1 May 89

**PLUTONIUM
RADIATION**

According to David L. Wheeler, senior health physicist at NV, the DOE uses the standards developed during the Enewetak cleanup for transuranics cleanup. This criteria, the removal of soil with contamination in excess of 400pCi/g, was developed during the Enewetak cleanup because no authoritative criteria existed. Consequently, states Wheeler, there is no reason for the Rongelapese not to return to their island because the Rongelap Island contamination levels do not exceed EPA guidelines.⁵⁷⁷

2 May 89

RADIATION

After testimony that raises questions about the habitability of Rongelap, House Interior Appropriations Subcommittee Chairman Morris Udall, Subcommittee on Insular and International Affairs Chairman Ronald de Lugo, and Rep. George Miller introduce House Con. Res. 90 calling for a comprehensive survey of radiation and other effects on Rongelap. The subcommittee plans to examine closely the DOE 1989 report and other material pertaining to the Rongelap situation.⁵⁷⁸

4 May 89

**CONTRACTOR
MEDICAL
PLUTONIUM**

Wheeler visits BNL to discuss the urine analysis for plutonium content of Marshall Island samples. Recently BNL has sent samples to the University of Utah for a comparison study between laboratories.⁵⁷⁹

1 Jun 89

RADIATION

According to DOE Secretary James Watkins, at his request the NAS establishes on this date a standing Committee on Radiation Epidemiological Research Programs to provide independent scientific advice to the DOE. The committee will advise DOE on the status of its epidemiology program, the creation of a comprehensive epidemiological data repository, the development of protocols for the use of this repository, and the granting of independent research proposals.⁵⁸⁰

5 Jun 89

**CONTRACTOR
MEDICAL
PLUTONIUM
RADIATION**

All of the Rongelap and Utirik urine samples, except one, taken by BNL in May 1989 show plutonium at background levels.⁵⁸¹

10 Jul 89

**CONTRACTOR
MEDICAL
PLUTONIUM**

In the report, "The Radiological Dose From Pu at Rongelap Island," William L. Robison, Casper Sun, and Charles B. Meinhold state that the estimated committed dose equivalent from plutonium at Rongelap Island is very similar for both the environmental and urine analyses. BNL and LLNL agree on the plutonium dose on Rongelap Island.⁵⁸²

10 Jul - 12 Aug 89

**CONTRACTOR
MEDICAL
PLUTONIUM**

The BNL conducts whole body counting and urine sampling of Enewetak, Medrin, Rongelap, and Utirik people. The eight team members collect 976 whole body counting records to reconfirm the radiological safety of the Marshallese and 209 urine samples to monitor the Marshallese uptake of plutonium. Precautions are taken during this mission to ensure the minimum amount of contamination of the samples because of the probability of contamination of the 1981-1984 samples during handling.⁵⁸³

2 Aug 89

ADMINISTRATION

In testimony before the Senate Committee on Governmental Affairs DOE Secretary James D. Watkins announces the establishment of a special advisory committee to conduct an independent evaluation of DOE epidemiological activities. Watkins expects the committee also to provide guidance on restructuring and

enhancing the DOE epidemiological program, which he finds "understaffed, underfunded, and underutilized." He has appointed Kristine Gebbie, administrator of the Oregon Health Division, as the committee's chair.⁵⁸⁴

7 Aug 89

RADIATION

The RMI forms a panel to consider if another radiological survey based on the DOE's 1978 effort is necessary.⁵⁸⁵

30 Aug 89

**CONTRACTOR
MEDICAL
RADIATION
RELOCATION**

William L. Robison of LLNL and Sun and Meinhold of BNL disagree with statements made by Bernd Franke in "Is Rongelap Atoll Safe?" They believe that Rongelap is safe for resettlement. To substantiate their statements, they present data obtained in 1985-1987.⁵⁸⁶

All estimated doses for Rongelap Island based on data obtained in 1978, 1985, 1986, and 1987 and compared with the U.S. and worldwide background doses are within a safe range.⁵⁸⁷

1 Sep 89

**CONTRACTOR
RADIATION**

The Rongelap community is invited to send representatives to observe the DOE/LLNL work to be conducted 18-27 November 1989.⁵⁸⁸

20 Sep - 10 Oct 89

**MEDICAL
CONTRACTOR**

William D. Jackson, PASO program liaison specialist, learns during the fall BNL medical mission that DOE and the Nuclear Claims Tribunal of the RMI government are planning to discuss a Marshall Islands radiological survey sponsored by the tribunal.⁵⁸⁹

17 Oct 89

**CLAIMS
LEGAL RESPONSIBILITY
MEDICAL**

A decision by the DOI associate solicitor for general law concludes that the provisions of COFA preempt Section 104 of P.L. 95-134. Therefore, the DOI will not accept any more medical claims from the residents of the RMI.⁵⁹⁰

18 Oct 89

**CONTRACTOR
MEDICAL
PLUTONIUM
RADIATION**

William L. Robison of LLNL submits a paper to Harry U. Brown stating why he does not believe that the "Tru Clean" soil decontamination plant at Johnston Atoll should be used to decontaminate Rongelap soil of plutonium concentrations. His

major concern is that this would require the removal of all of the coconut, breadfruit, pandanus, and lime trees and all other vegetation from the island.⁵⁹¹

23 Oct 89

**CONGRESSIONAL RELATIONSHIP
PLUTONIUM
RADIATION
RELOCATION**

Chairman Ron de Lugo of the House Subcommittee on Insular and International Affairs invites DOE Secretary Watkins to testify at the 16 November oversight hearing on the health of the Rongelap people. De Lugo submits three pages of matters for the DOE to address at the hearing, including analyses of the Rongelap Reassessment Project report and the phase 2 work plan for "Making Rongelap Habitable," a description of Rongelap Atoll cleanup efforts, and information on the DOE testing of Rongelapese for plutonium or other transuranics.⁵⁹²

16 Nov 89

**ADMINISTRATION
CLAIMS
CONGRESSIONAL RELATIONSHIP
LEGAL RESPONSIBILITY
RELOCATION**

Representing DOE Secretary Watkins, John L. Meinhardt, DOE principal deputy assistant secretary for defense programs, testifies at the House Subcommittee on Insular and International Affairs oversight hearing on Rongelap. Meinhardt declares, "We, as a country, accept full responsibility for compensation to the citizens of the Marshall Islands resulting from the Bravo event, as well as other testing between 1946 and 1958." Emphasizing Watkins's commitment to environmental, health, and safety matters, Meinhardt states that the DOE Secretary "intends to give the issues raised by the Rongelap people an additional review," complete the review within six months, and report the results "by next summer." With respect to the Rongelap technical data supporting the current DOE position, Meinhardt affirms, "We stand by these data." De Lugo asks Meinhardt "to take a message back to Secretary Watkins, that this subcommittee is very appreciative of the new approach." (John Rudolph and Harry Brown of DOE, Drs. William Adams and Charles Meinhold of BNL, and Dr. William Robison of LLNL prepare draft statements for this hearing, but the DOE leadership cancels their testimony and replaces it with Meinhardt's.) Later both de Lugo and Sen. Anjain refer to Meinhardt's review statement as a "fresh look," which Anjain says Watkins "promised...over the objections of the DOE program managers..."⁵⁹³

Testifying before the same House subcommittee, Sen. Anjain urges that the independent study of Rongelap promised in P.L. 99-239 "be promptly initiated."⁵⁹⁴

According to a letter by John C. Tuck, DOE, of 2 May 1990, Rudolph expresses the Secretary's desire to have an outside review of DOE's past work regarding the habitability of Rongelap. Bernd Franke, Henry Kohn, and Rosalie Bertell testify regarding the Rongelap reassessment project. Robert K. Lane, of P&D technologies, testifies about the phase 2 work plan for an independent study of outstanding radiation and health issues on Rongelap.⁵⁹⁵

21 Nov 89

**AGREEMENT
RADIATION
RELOCATION**

Del. Ron de Lugo of the House Subcommittee on Insular and International Insular Affairs, commends Secretary of Energy Watkins for making a commitment to take a "fresh look" at the issue of the radiation contamination at the Marshall Islands and the people of Rongelap Atoll.

De Lugo requests the DOE to address in the promised additional review the extent of information disclosed to the Rongelapese and Congress on Rongelap radiation, safety, and health issues and whether radiological surveys and a cleanup were conducted on the atoll.⁵⁹⁶

7 Dec 89

**ADMINISTRATION
PLUTONIUM
RADIATION**

The RMI requests assistance from the DNA in completing the cleanup of Runit Island at Enewetak Atoll.⁵⁹⁷

Acting RMI President Kunio Lemari asks for Admiral Huntington Hardisty's assistance in arranging for the DNA to complete cleanup of Runit Island. He requests that the plutonium mining plant being used at Johnston Atoll to extract plutonium from soil be used at Runit once cleanup is completed on Johnston Atoll. This request is passed on to the American embassy in Majuro.⁵⁹⁸

8 Dec 89

**ADMINISTRATION
AGREEMENT**

The DOE/PASO and DOI sign an informal agreement outlining financial arrangements and program management under which the DOE will, on a cost reimbursable basis, support certain DOI programs in the Marshall Islands.⁵⁹⁹

28 Dec 89

**RADIATION
RELOCATION**

RMI Sen. Jeton Anjain testifies before the DOE Secretarial Panel for the Evaluation of Epidemiologic Research Activities (SPEERA). He relays current Rongelapese concerns and submits recommendations based on the interim report. He recommends that the Rongelap people have access to the Rongelap medical and related records; that the phase 2 comprehensive and independent study of Rongelap mandated under the COFA be initiated; and that the DOE should conduct a study to determine the feasibility of transferring medical funds to a hospital in the Marshall Islands. He alleges that because the DOE weapons played a part in radiological contamination, DP cannot be objective in the management of the Marshall Islands program.⁶⁰⁰

3 Jan 90

**CONTRACTOR
MEDICAL
PLUTONIUM
RADIATION**

Because of the results of a study of samples collected in summer 1989 to assess the plutonium background in the RMI areas, the BNL concludes that the urine samples collected from 1981 to 1984 were contaminated during field collections.⁶⁰¹

The BNL submits the first 40 plutonium results from the urine samples taken from people who had previously high plutonium results in the summer of 1989. The data confirm the speculation that the urine samples collected from 1981 to 1984 were contaminated during field collections. The new fission track etch procedure has improved the quality assurance of the process. The new data show that the people measured have no greater than 100 attocuries of plutonium in their urine and will not receive greater than 1 mrem/yr from plutonium.⁶⁰²

8 Jan 90

**CONGRESSIONAL RELATIONSHIP
MEDICAL
RADIATION**

In draft comments on S. 1802, the "Department of Energy Nuclear Facilities Act of 1989," the DOE officials advise that "Title V, Monitoring of Health and Radiological Conditions in the Northern Marshall Islands," is unnecessary because these actions already are being undertaken.⁶⁰³

9 Jan 90

**ADMINISTRATION
RADIATION**

In response to Acting RMI President Kunio LeMari's request for a cleanup of Runit Island, Chief of Mission Samuel Thomsen of the American Embassy requests that the DOE and the DOI coordinate with the DNA to determine the best means of completing decontamination of Runit. Citing the favorable comment received by the DOE for its decision to reexamine the safety of Rongelap, Thomsen comments that attention paid to Runit would have similar political and humanitarian benefits.⁶⁰⁴

13 Jan 90

**MEDICAL
PLUTONIUM
RADIATION**

The DOE informs a Marshall Islands government resident scientist that the results of the plutonium analysis reinforce the belief that plutonium is not a health hazard at Rongelap.⁶⁰⁵

19-21 Jan 90

**ADMINISTRATION
CONGRESSIONAL RELATIONSHIP
CONTRACTOR**

A five-person LANL team and William Jackson, the PASO program liaison specialist, travel to Maloelap Atoll to make arrangements with the atoll leadership for LANL to conduct a scientific experiment in August and/or September 1990. Jackson accompanies a House Appropriations Committee staffer to Enewetak and Bikini to brief the residents of the DOE's activities at both places. While at Enewetak Jackson relays the DOE's desire to terminate its role at Enewetak by 30 September 1990.⁶⁰⁶

22 Jan 90

**ADMINISTRATION
RADIATION
RELOCATION**

The DP replies to the testimony by Sen. Anjain at the 28 December SPEERA meeting that medical/radiation records are already available to the Marshallese, although general policy is that they do not release unevaluated data; that the comprehensive and independent study of Rongelap Island would be authorized if the independent study of the DOE's data by Kohn concluded that the DOE data did not support the habitability of the island; and that the organizational assignment to DP has no influence on its technical content or scientific results.⁶⁰⁷

24 Jan 90

**ADMINISTRATION
PLUTONIUM
RADIATION**

The Marshall Islands Nitijela (legislature) passes a resolution commending DOE Secretary Watkins for his support of a second look at Rongelap issues and urging him to implement a phase 2 study of Rongelap Island.⁶⁰⁸

In a draft response to the American Embassy in Majuro regarding cleanup of Runit Island, DNA states that any attempt to start cleaning Runit now would be premature. DNA is still testing mining methods as a means for cleaning plutonium from the soil, and the scope of cleanup required on Runit is more difficult and costly than that being done on Johnston Atoll. If technology questions are resolved at Johnston Atoll, a Runit cleanup is two to four years away. DNA recommends beginning long-range planning and coordination for Runit cleanup and starting with the planning meeting to identify a lead agency and assign critical tasks.⁶⁰⁹

2 Feb 90

**CONTRACTOR
RADIATION**

In response to the desire of the Marshallese to perform their own radiation measurements throughout the Marshall Islands, W. John Tipton, assistant operations manager for aerial measurements operations of EG&G, recommends that the islanders purchase three or four hand-held survey meters for each atoll and that two or three people on each atoll be trained in the operation of the instruments. He offers to furnish limited use of EG&G's germanium in situ system resources, provided that EG&G takes the measurements if quantitative data on other atolls is needed to tie in with results of the 1978 survey.⁶¹⁰

16 Feb 90

**ADMINISTRATION
CONTRACTOR
MEDICAL**

The PASO issues the Operations Plan, Mission Number 90-2, FY 1990, for a medical surveillance trip to be conducted by BNL at Ebeye, Majuro, Utirik, and Mejato in March-April 1990.⁶¹¹

18 Mar - 13 Apr 90

**CONTRACTOR
MEDICAL**

During the spring medical mission to Ebeye, Majuro, Utirik, and Mejatto the BNL team conducts 339 full medical examinations of the Marshallese. The doctors

examine nearly fifty referrals from the Marshall Islands health care system and see problem cases at the Majuro hospital. The pediatrician treats 160 children at island sick calls.⁶¹²

26-27 Mar 90

**CONTRACTOR
PLUTONIUM
RADIATION**

Established by the BNL department of nuclear energy to obtain an external scientific assessment of BNL's Marshall Islands radiation safety program, an independent scientific review committee meets at BNL. The committee reviews the two radioanalytical methods and the dosimetric models used by BNL to estimate radiation dosages. The committee concludes that the analytical data from urine collected in 1988-1989 are valid. The group also advises that urine samples collected prior to 1988 should be discarded because of flaws in the previous analytical method and protocols for urine collection which did not protect against contamination. The committee finds that whole-body counting procedures were within acceptable guidelines of technical excellence and conformed to recognized standards. It recommends further quality assurance procedures and guidance for intake and dose estimates.⁶¹³

27 Mar 90

ADMINISTRATION

DOE Secretary Watkins directs the consolidation of medical surveillance, epidemiology, and other health matters into the new office of health. This order includes the Marshall Island Program.⁶¹⁴

18 Apr 90

**ADMINISTRATION
CONTRACTOR
RADIATION**

The PASO issues Operations Plan, Mission Number 90-4, for the standard LLNL terrestrial investigations to be conducted at Bikini.⁶¹⁵

Harry Brown notifies W. H. Adams and C.B. Meinhold at BNL; W.L. Robinson at LLNL; Joe Dryden at PASO, NV; and Roger Ray of potential changes in the management of the Marshall Islands program. The Brown notification follows charges by Rongelap leaders that DP cannot be objective in the conduct of its work in the Marshall Islands and recommendations by SPEERA that DOE's management of the Marshall Islands program be reassigned to the DOE deputy assistant secretary of health. Brown states that the latter office may assume program control directly with BNL and LLNL and that NV may have no program management function and may only provide logistical support. He asks the addressees to assist program transition to minimize disruption of work.⁶¹⁶

30 Apr 90

**ADMINISTRATION
CONTRACTOR**

Dr. Charles B. Meinhold of the BNL department of nuclear energy, radiological sciences division, responds to David Weiman's questions concerning the organization, management, and scientific approval processes at BNL. Weiman is a lobbyist for the Rongelapese. Meinhold remarks that in terms of determining priorities for program study, "DOE determines the overall need. Brookhaven determines the best way to

proceed." He describes the program approval and review processes for the bioassay program.⁶¹⁷

May 90

RADIATION

Bernd Franke of the Institute for Energy and Environmental Research, a Takoma Park, Maryland institute, issues "Why the Rongelap Reassessment Project Did Not Fulfill Its Mission, Rongelap Versus Eniwetak and Bikini: Equal Treatment?" to the Rongelap Atoll local government. The report alleges failures of the Kohn report and discusses the varying criteria for the assessments of Bikini, Enewetak, and Rongelap.⁶¹⁸

1 May 90

RADIATION

WEAPON TESTING

David Weiman meets with Joseph Karpinski, DOE principal deputy assistant secretary for congressional and intergovernmental affairs; Gary Palmer, special assistant to the under secretary; and Gary Knight, deputy assistant secretary for House liaison, prior to Senator Anjain's testimony before the House Appropriations Subcommittee on Interior and Related Agencies (Yates Committee). Weiman provides DOE Secretary Watkins's office with Assistant Secretary Roser's 23 March 1982 memorandum and a 14 April 1982 memorandum from J. W. Thiessen to A. W. Trivelpiece regarding the transfer of Marshall Islands programs from EP to DP. He raises three sensitive new matters of concern: a DOE radiation double standard at Rongelap; questionable applicability of traditional DOE dose standards to the exposed people of Rongelap; and Safeguard "C" and the subordination of health and safety programs. Weiman states that "Senator Anjain and Rongelap believe there is a reasonable and easily attained solution to the overall matter" and that Anjain and Weiman are "willing to work to work with the Secretary to resolve it".⁶¹⁹

2 May 90

RADIATION

DOE Under Secretary John C. Tuck requests that the NAS undertake an independent review of all data available regarding the radiological status and habitability of Rongelap. This review should consider the views of the people of Rongelap, DOE, and those who conducted the initial review pursuant to the COFA. He requests that members of the review panel be selected in a manner that assures impartiality so that the conclusions will be acceptable to the people of Rongelap.⁶²⁰

4 May 90

ADMINISTRATION

MEDICAL

RADIATION

WEAPON TESTING

Sen. John Glenn (D-Ohio), chairman of the Senate Committee on Governmental Affairs, requests DOE Secretary Watkins to support an independent "Phase II" assessment of the radiological contamination of Rongelap Atoll and provide humanitarian assistance so that the Rongelap people may resettle where they will have access to food and medical care.⁶²¹

Sen. Anjain issues a statement to the Subcommittee on Interior and Related Agencies on behalf of the Rongelap Atoll local government and the Rongelap people. He states that the Rongelap reassessment project created new questions rather than resolving them and demonstrated that there is "a significant lack of knowledge" concerning the environmental and radiological conditions on Rongelap and the health

and medical condition of the Rongelapese. According to Anjain, sections of the COFA designed to deal with the Rongelap situation are not working, and Dr. Kohn's Rongelap reassessment project recommendations contradict provisions of the COFA. Anjain charges that the U.S. uses a radiation double standard in the application of radiation guidelines; that DOE and AEC have subordinated all Marshall Islands medical and environmental programs to defense readiness status for the resumption of weapons testing (Safeguard "C"); that the DOE is creating unnecessary barriers to medical records; and that the DOE's definition of habitability is distorted and unreliable.⁶²²

7 May 90

CONTRACTOR

Harry Brown of NV reissues his invitation to David Weiman and the Rongelap leadership to visit BNL and LLNL to see first-hand how the scientific process works. He states that the people of Bikini and Enewetak found this helpful in their decision-making process.⁶²³

11 May 90

**CONTRACTOR
WEAPON TESTING**

The Rongelap Atoll local government directs H&N to answer whether they are or ever were under contract to the DOE for any aspect of Safeguard "C."⁶²⁴

18 May 90

RADIATION

Responding to Under Secretary Tuck's request for a review of the radiological status and habitability of Rongelap, Frank Press, chairman of the NRC, writes that the NRC will consider organizing such a study and will develop and submit to the DOE a formal proposal for performance of the study.⁶²⁵

20 May 90

POLICY

The Rongelap Atoll local government council passes a resolution that the DOE and its contractors, with the exception of the BNL Marshall Islands medical program, are denied access until the DOE provides the council with a full and complete accounting of the relationship to and management of the DOE/DP program "Safeguard C," which requires the U.S. to maintain the ability to resume atmospheric nuclear testing.⁶²⁶

8 Jun 90

ADMINISTRATION

DOE Secretary Watkins notifies House Subcommittee Chairman de Lugo that he is transferring the management of DOE's Rongelap activities from DP to a new office of health under the assistant secretary for environment, safety and health.⁶²⁷

J. H. Dryden, director of PASO, notifies Stella Guerra, DOI assistant secretary for territorial and international affairs, that the DOE is planning to initiate action to phase out the operations of the field office at Enewetak. This program is funded on an interagency agreement between the DOE and the DOI.⁶²⁸

2 Jul 90

ADMINISTRATION

Stella Guerra of DOI notifies Harry Brown that she believes that Congress will appropriate funding to continue the program at Enewetak.⁶²⁹

3 Aug 90

ADMINISTRATION

The current DOE medical and environmental programs relating to the Marshall Islands are shifted to EH by an amendment to the DOD authorization bill. The amendment focuses on management consolidation and is meant to insure continuity of Marshall Islands program activities in the overall reorganization of health and safety matters at DOE. Activities formerly conducted through DP will be conducted through EH.⁶³⁰

6 Aug 90

**ADMINISTRATION
CONTRACTOR
MEDICAL**

The PASO issues Operation Plan, Mission Number 90-5, BNL's annual follow-up mission for medical examinations on Mejato, Utirik, Majuro and Ebeye.⁶³¹

27 Aug 90

**CONTRACTOR
MEDICAL
PLUTONIUM**

The University of Utah analyzes 29 samples of Marshallese urine furnished by BNL and finds two samples which show definite evidence of plutonium.⁶³²

6-28 Sep 90

**ADMINISTRATION
AGREEMENT
MEDICAL**

During the BNL fall medical mission, William D. Jackson, the DOE field representative on the trip, reaches agreement with the administration of the 177 Health Plan on a renewal of the existing Memorandum of Understanding. He reports that BNL and 177 Health Plan professionals established productive lines of communication during the trip and agreed upon techniques and means for coordination and sharing information.⁶³³

10 Sep 90

ADMINISTRATION

Joseph H. Dryden of PASO notifies Brown that, due to lack of funding, he is closing down the field station at Enewetak until PASO receives FY 1991 funding.⁶³⁴

5 Oct 90

**AGREEMENT
RELOCATION**

The DOI and the Kili/Bikini/Ejit local government sign a memorandum of agreement regarding the rehabilitation and resettlement of Bikini Atoll, including public land use payments and other budgetary matters.⁶³⁵

25 Oct 90

ADMINISTRATION

Stella Guerra of DOI reacts to statements by House and Senate appropriations subcommittees that Congress expects the DOI and the DOE and its contractor to continue to work together to establish a plan to turn over the Enewetak food and agricultural maintenance program to the local government at the earliest possible time. She recommends that the DOI and the DOE and its contractor meet at PASO's

Honolulu office to coordinate the development of plans to carry out this work. In the meantime, she suggests operating the program under the existing DOE/DOI agreement under the level of funding in the continuing resolution.⁶³⁶

26 Oct 90

RADIATION

Harry Brown writes to Oscar de Brum of the RMI, to provide consolidated recommendations as to how the RMI might treat the soil of islands to mitigate the uptake of cesium¹³⁷ into food crops. The DOE suggests initial application of 1200 pounds per acre of potassium chloride. Islands that might be considered for this treatment are: Eneu; Bikini; the six planted northern islands at Enewetak; Enjebi, if replanted and resettled; Rongelap; and Arbor.⁶³⁷

6 Nov 90

**ADMINISTRATION
AGREEMENT**

The DOI approves the extension of the agreement dealing with the operation of the Enewetak food and agricultural maintenance program until the DOI can determine if it should revise the agreement. The DOI authorizes funding for DOE through 31 December.⁶³⁸

APPENDIX A

**Sections of Section 177
of the Compact of Free Association
and its Implementing Agreement
of Interest to the DOE***

PUBLIC LAW 99-239 Joint Resolution to approve the "Compact of Free Association," and for other purposes. January 14, 1986

COMPACT OF FREE ASSOCIATION

SECTION 177

A. The U.S. government accepts responsibility for compensation owing to citizens of the Marshall Islands or the Federated States of Micronesia for loss or damage to the property and person of the citizens of the Marshall Islands or the Federated States of Micronesia resulting from the nuclear testing program, June 30, 1946 - August 18, 1958.

B. In a separate agreement the governments of the Marshall Islands and the U.S. will set forth provisions for settlement of all claims; for the continued administration by the U.S. government of direct radiation related medical surveillance and treatment programs and radiological monitoring activities and for additionally agreed upon programs and activities; and for the assumption by the government of the Marshall Islands of responsibility for enforcement of limitations, developed in cooperation with the U.S. government, on the utilization of affected areas with mutually agreed upon assistance by the U.S. government.

C. The U.S. government shall provide the government of the Marshall Islands a grant of \$150 million to be paid and distributed according to the separate agreement.

**Agreement Between the Government of the United States and
the Government of the Marshall Islands for the Implementation of Section 177
of the Compact of Free Association**

Sections of Particular Interest to the DOE

ARTICLE II - DISTRIBUTION OF ANNUAL PROCEEDS

Section 1 - Health, Food, Agricultural Maintenance and Radiological Surveillance

a. \$30 million is distributed to the RMI in amounts of \$2 million for 15 years. The RMI is to use these funds to receive technical assistance, on a reimbursable basis from agencies of the U.S. government. The U.S. shall provide technical assistance including contractor services to assist the RMI to include health-care programs and services related to the consequences of nuclear testing in its health care system.

*The full texts of these documents are in Document nos. D105 and D113.

Technical assistance shall include, at RMI request, a whole body counter, to be located in a facility supplied by the RMI, and the training of its operator. Technical assistance may include professional personnel services and dosimetry and bioassay services.

d. At RMI request, the U.S. is to provide technical assistance, programs and services, on a reimbursable basis, to continue the planting and agricultural maintenance program on Enewetak and to continue the food programs of the Bikini people and the Enewetak people for as long as is required.

e. \$3 million to the RMI to conduct medical surveillance and radiological monitoring activities, are to be disbursed in average amounts of \$1 million for a three-year period commencing when the agreement goes into effect. The results of the medical surveillance and radiological monitoring are to be filed with the Claims Tribunal.

Section 2 - The People of Bikini

\$75 Million to the Bikini Distribution Authority in payment of claims arising out of the nuclear testing program for loss or damage to property and person of the people of Bikini, are to be disbursed in quarterly amounts of \$1.25 million for the fifteen-year period commencing one quarter year after the agreement goes into effect.

Section 3 - People of Enewetak

\$48.75 million to the Enewetak Distribution Authority in payment of claims arising out of the nuclear testing program for loss or damage to property or person of the people of Enewetak, are to be disbursed in quarterly amounts of \$812,500 for the period commencing one calendar quarter after the agreement goes into effect.

Section 4 - People of Rongelap

\$37.5 million to the Rongelap Distribution Authority in payment of claims arising out of the nuclear testing program for loss or damage to property and person of the people of Rongelap, are to be disbursed in quarterly amounts of \$625,000 for the fifteen-year period commencing one calendar quarter after the agreement goes into effect.

Section 5 - People of Utirik

\$22.5 million to the Utirik [sic] Distribution Authority in payment for claims arising out of the nuclear testing program for loss or damage to property and person of the people of Utirik, are to be disbursed in quarterly amounts of \$375,000 for the fifteen-year period commencing one calendar quarter after the agreement goes into effect.

Section 8 - Bikini, Enewetak, Rongelap and Utirik Trusts

The people of Bikini, Enewetak, Rongelap and Utirik shall establish trusts with all or a portion of the annual proceeds from this Agreement in order to provide additional long-term means to address consequences of the nuclear testing program.

ARTICLE VI - RESETTLEMENT OF BIKINI ATOLL AND CONVEYANCE OF PROPERTY IN RESPECT TO BIKINI

Section 1 - Resettlement

The U.S. reaffirms its commitment to provide funds for the resettlement of Bikini Atoll by the people of Bikini at a time which cannot now be determined.

ARTICLE VII - UTILIZATION OF LANDS

The U.S. is relieved of responsibility for, and the RMI shall have responsibility for, controlling the utilization of areas in the Marshall Islands affected by the nuclear testing program.

ARTICLE VIII - NORTHERN MARSHALL ISLANDS RADIOLOGICAL SURVEY

The U.S. has concluded that the northern Marshall Islands radiological survey and related environmental studies represent the best effort accurately to evaluate and describe conditions on the Marshall Islands. This survey and related environmental studies have been made available to the RMI and can be used to evaluate the food chain and environment and to estimate radiation-related health consequences of residing in the northern Marshall Islands.

ARTICLE IX - CHANGED CIRCUMSTANCES

If loss or damage to property and person resulting from the nuclear testing program are discovered subsequent to this agreement's becoming effective, which make its provisions manifestly inadequate, and such could not reasonably have been identified before its becoming effective, the RMI may submit to Congress a request for the U.S. to provide for such injuries. Congress is not committed to authorize and appropriate the funds.

ARTICLE X - ESPOUSAL

Section 1 - Full Settlement of Claims

This Agreement constitutes the full settlement of all claims, past, present and future, of the government, citizens, and nationals of the Marshall Islands relating to the nuclear testing program against the U.S., its agents, employees, contractors, citizens, and nationals.

Section 2 - Termination of Legal Proceedings

The RMI shall terminate any legal proceedings in the courts of the Marshall Islands against the U.S., its agents, employees, contractors and "citizens and nationals" involving claims arising out of the nuclear testing program.

ARTICLE XI - INDEMNITY

Subject to Article IX, the RMI shall indemnify and hold harmless the U.S., its agents, employees, contractors, "citizens and nationals," from all claims set forth in Article X, and all future actions on behalf of the RMI in any court arising out of the nuclear testing program. The indemnification shall not exceed \$150 million.

APPENDIX B - ABBREVIATIONS

| | |
|-------------------|---|
| ACBM | (AEC) Advisory Committee for Biology and Medicine |
| AEC | Atomic Energy Commission |
| AES | (DOE) Assistant Administrator for Environment and Safety |
| AFL | University of Washington Applied Fisheries Laboratory |
| AFSWP | Armed Forces Special Weapons Project |
| AGMMA | Assistant General Manager for Military Application |
| AMO | Assistant Manager for Operations |
| ANL | Argonne National Laboratory |
| BARC | Bikini Atoll Rehabilitation Committee |
| BNL | Brookhaven National Laboratory |
| CINCPACFLT | Commander-in-chief of the U.S. Pacific Fleet |
| COFA | Compact of Free Association |
| D | Democrat |
| DAF | Department of the Air Force |
| DASA | Defense Atomic Support Agency |
| DBER | (AEC) Division of Biology and Environmental Research |
| DBM | (AEC) Division of Biology and Medicine |
| DMA | (AEC) Division of Military Application |
| DNA | Defense Nuclear Agency |
| DOD | Department of Defense |
| DOE | Department of Energy |
| DOES | (DOE) Division of Operational and Environmental Safety |
| DOI | Department of the Interior |
| DOS | (AEC) Division of Operational Safety |
| DP | (DOE) Defense Programs |

| | |
|--------------|--|
| DRS | (AEC) Division of Radiological Safety |
| DWMT | (AEC) Division of Waste Management and Transportation |
| E.O. | Executive Order |
| EG&G | Edgerton, Germeshausen, and Grier, Inc. |
| EH | (DOE) Office of Health Physics |
| EPA | Environmental Protection Agency |
| ERDA | Energy Research and Development Administration |
| ERSP | (DOE) Enewetak Radiological Support Project |
| FPDB | Fission Product Data Base |
| FRC | Federal Radiation Council |
| FY | Fiscal Year |
| GAO | General Accounting Office |
| GPO | Government Printing Office |
| H. Con. Res. | House Concurrent Resolution |
| H. J. Res. | House Joint Resolution |
| H&N | Holmes and Narver Construction Company |
| HASL | (AEC) Health and Safety Laboratory |
| HPE | (DOE) Health Physics and Environmental Division |
| ICRP | International Commission on Radiological Protection |
| ISA | (AEC) International Security Affairs |
| JCAE | Joint Committee on Atomic Energy |
| JTF-7 | Joint Task Force Seven |
| LANL | Los Alamos National Laboratory |
| LASL | Los Alamos Scientific Laboratory |
| LFMER | Lovelace Foundation for Medical Education and Research |
| LLL | Lawrence Livermore Laboratory |
| LLNL | Lawrence Livermore National Laboratory |

| | |
|-------|--|
| LRB | Laboratory of Radiation Biology |
| LRE | Laboratory of Radiation Ecology |
| LST | (DOE) Litigation Support Team |
| MAC | Military Air Command |
| MH&S | (AEC) Medicine, Health and Safety |
| MIDG | Marshall Islands Dosimetry Group |
| MIDRG | Marshall Islands Dosimetry Review Group |
| MIPG | Marshall Islands Planning Group |
| MLSC | Micronesian Legal Services Corporation |
| MPRL | Mid-Pacific Research Laboratory |
| mr | milliroentgens |
| mrem | millirem |
| NARA | National Archives and Records Administration |
| NAS | National Academy of Sciences |
| NEPA | National Environmental Policy Act |
| NIH | National Institutes of Health |
| NTIS | National Technical Information Service |
| NMRI | Naval Medical Research Institute |
| NRDL | Naval Radiological Defense Laboratory |
| NRC | National Research Council |
| NSC | National Security Council |
| NV | (AEC) Nevada Operations Office |
| NYOO | (AEC) New York Operations Office |
| OGM | (AEC) Office of the General Manager |
| OMB | Office of Management and Budget |
| ORNL | Oak Ridge National Laboratory |
| P.L | Public Law |

| | |
|--------------|--|
| PACE | Pacific Cratering Experiment |
| PAG | Protective Action Guide |
| PASO | (DOE) Pacific Area Support Office |
| PE | (DOE) Office of Policy, Plans, and Analysis |
| PNL | Pacific Northwest Laboratories |
| PPG | Pacific Proving Ground |
| R | Republican |
| R, r | This abbreviation is copied as it appears in the original documents and may be rem, rad, or roentgen |
| RARG | Radiological Assessment Review Group |
| REECo | Reynolds Electrical and Engineering Company |
| RMI | Republic of the Marshall Islands |
| SAIS | School of Advanced International Studies |
| S. Con. Res. | Senate Concurrent Resolution |
| SECY | (AEC) Secretariat Staff Paper |
| SFOO | (AEC) Santa Fe Operations Office |
| SIO | Scripps Institute of Oceanography |
| SPEERA | Secretarial Panel for the Evaluation of Epidemiologic Research Activities |
| SSC | Safety, Standards, and Compliance |
| T.T. | Trust Territory |
| TTG | Transuranium Technical Group |
| U of W | University of Washington |
| USGS | U.S. Geological Survey |
| USPHS | United States Public Health Service |
| WERL | Western Environmental Research Laboratory |

APPENDIX C

GOVERNMENTS

ORGANIZATIONS AND INDIVIDUALS

CONCERNED WITH DEVELOPMENTS IN THE MARSHALL ISLANDS

1985-1986

Private Sector Organizations Involved or Interested in
Health and Community Development in Micronesia

The Foundation for the Peoples of
The South Pacific
2-12 West Park Avenue
Long Beach, NY 11561
Phone (516) 432-3563
Executive Director: Fr. Stanley W. Hosie

Micromedcom (Micronesia Medical
Communications)
2645 Huazala Street
Honolulu, HI 96822
Phone (808) 955-4323
Director: Dr. Greg Dever

Pacific Islands Development Program
East-West Center
1777 East West Road
Honolulu, HI 96848
Phone (808) 944-7704
Research Coordinator: Dr. Michael P. Hammett

Pacific Studies Institute
P.O. Box 20820 GMF
Apia, Guam 96910
Director: Dr. Samuel Price

Pacific Basin Development Council
567 South King Street, Suite 325
Honolulu, HI 96813
Phone (808) 523-9325
Executive Director: Mr. Jerry B. Norris

Pacific Basin Environmental Consultants
P.O. Box 20620 GMF
Guam, MI 96321
Phone (671) 472-8016
President: Ronald D. Strong

Pacific Business Center Program
University of Hawaii at Manoa
College of Business Administration
2404 Māhe Wa,
Honolulu, HI 96822
Phone (808) 945-6285
Director: Ms. Angela L. Williams

Pacific Basin Economic Council
c/o SRP Internationals
Menlo Park, CA 94025
Phone (415) 859-4455
Staff Coordinator: Ms. Tom Talbot
(PBEC deals with general policy issues in the
region)

Pacific Educational Network
650 Fifth Street, Suite 306
San Francisco, CA 94107
Phone (415) 552-4650
Executive Director: Mr. Solomon S. Apéluz

The Pacific Foundation
(For The Advancement of Science and
Medicine)
2135 Renfrow
Cleveland, OH 44116
Phone (216) 932-7733
Director: Dr. Peter S. Tippet

The Micronesia Institute
2152 Wyoming Avenue, N.W.
Washington, D.C. 20005
Phone (202) 367-7525
Chairman: Ms. Patricia Luce Chapman

School of the Pacific Islands, Inc.
125 West Thousand Oaks Blvd
Thousand Oaks, CA 91360
Phone (805) 497-7691
President: Mr. Lawrence C. Janss

Marimed Foundation

John Rudolph's Files E.H.

Full-Time Employees

| | |
|---------------------|------------------------------|
| Executive Director | David D. Higgins, J.D., M.M. |
| Medical Director | Ilona Laszlo Higgins, M.D. |
| Deputy Director | Ned Mazer, M.D., M.P.H. |
| Operations Manager | Teri E. Klein |
| Executive Secretary | Joan Patterson |

Part-time Employees and Consultants

| | |
|------------------------------|---------------------------------|
| Administrative Assistant | Lydia Hilbert |
| Bookkeeper | Dorinda Young |
| Nutrition Program Consultant | Elizabeth Meisels, R.D., M.P.H. |
| Student Intern | Maryann P. Zm |

United States House and Senate Committees and Staff

The following is a list of key House and Senate Committees and staff who regularly deal with Micronesia programs and budgets

Committee on Interior and Insular Affairs
U.S. House of Representatives
Washington, D.C. 20515
Chairman: Honorable Morris K. Udall
Staff: Mr. Jeffrey Farrow, Advisor
Phone: (202) 225-9297

House Subcommittee on Public Lands
Subcommittee Chairman John F. Seiberling
Staff: Ms. Patricia A. Krause,
Professional Staff Member
Room 812 House Annex #1
Washington, D.C. 20515
Phone: (202) 226-7730

(As a rule, Mr. Farrow deals with U.S. Territory issues, while Ms. Krause handles Trust Territory issues.)

House Appropriations Committee
Subcommittee on Interior and Related Agencies
Room B306 Rayburn House Office Building
Washington, D.C. 20515
Chairman: Honorable Sidney R. Yates
Staff: Ms. Kathleen R. Johnson,
Staff Assistant
Phone: (202) 225-3081

Senate Committee on Energy and Natural Resources
United States Senate
Washington, D.C. 20510
Chairman: Honorable James A. McClure
Staff: Mr. James P. Berne,
Senior Counsel
Allen Stayman, Staff Member
(for authorization committee)
Phone: (202) 224-2564

Senate Committee on Appropriations
Subcommittee on Interior and Related Agencies
Washington, D.C. 20510
Subcommittee Chairman James A. McClure
Staff: Mr. Jeffrey Calkin
Phone: (202) 224-7262

Trust Territory Health System Directors

Republic of the Marshall Islands
Dr. Jack Heikena
Secretary of Health Services
Republic of the Marshall Islands
P.O. Box 16
Majuro, Marshall Islands 96960

Federated States of Micronesia
Dr. Elmer Pretzick
Chief, Division of Health Services
Department of Social and Health Services
National Government of the Federated States of Micronesia
Kolonia, Pohnpe 96941

Yap State, FSM
Ms. Mary Figin, Director
State Health Services
P.O. Box 148
Yap, FSM 96943

Truk State, FSM
Dr. German Allen
Acting Deputy Director of Health Services
for Truk State
Truk, FSM 96942

Kosrae State, FSM
Dr. Arthur Sigran
State Director of Health Services
Kosrae, FSM 96944

Pohnpei State, FSM
Dr. Aminis David
State Director of Health Services
Pohnpei State, FSM 96941

Republic of Belau
Dr. Masao Kumanga
Director
Bureau of Health Services
MacDonald Memorial Hospital
Koror, Belau 96940

Commonwealth of the Northern Mariana Islands
Dr. Jose Villagomez
Director of Public Health and Environmental Services
Dr. Torres Hospital
Saipan, CNMI 96950

Guam
Mr. Dennis Rodriguez, Director
Department of Health and Social Services
P.O. Box 2816
Agana, Guam 96910

American Samoa
Dr. Julia L. Lyons
Director of Health Services
LBJ Tropical Medical Center
Pago Pago, American Samoa 96799

(The Region IX office of the U.S. Public Health Service in San Francisco has just issued a Health Services Directory for all the territories that notes all major facilities, services and personnel. It will be updated every 6 months. Copies are available by writing to: Dr. Sheridan Weinstein, Regional Health Administrator, U.S. Public Health Service, 50 United Nations Plaza, San Francisco, CA 94102.)

Micronesia Government Leaders

Trust Territory Government
Honorable Jane McCoy
High Commissioner
Trust Territory of the Pacific Islands
Saipan, CNMI 96950
Phone: 011-670-9413

Republic of the Marshall Islands
Honorable Amata Kabua
President
Republic of the Marshall Islands
Majuro, Marshall Islands 96960

Federated States of Micronesia
(Composed of States of Kosrae, Pohnpe, Truk, Yap)

Honorable Tosiwo Nakayama
President
Federated States of Micronesia
Kolonia, Pohnpe
Eastern Caroline Islands 96941
Phone Int. Op. 160-691 Pohn Pe #226

Honorable John Mangela
Governor of Yap
Kolonia, Yap
Western Caroline Islands 96942
Lt. Gov. Hilary Tachelo

Honorable Erhat Aler
Governor of Truk
Moent, Truk
Eastern Caroline Islands 96942
Lt. Gov. Robert Mori

Honorable Resio Moses
Governor of Pohnpe
Kolonia, Pohnpe
Eastern Caroline Islands 96941
Phone Int. Op. 160-691 Pohnpe #235
Lt. Gov. Johnny P. David

Honorable Yoswo George
Governor of Kosrae
Kosrae, Eastern Caroline Islands 96944
Lt. Gov. Moses Mackawelung

Republic of Belau
Honorable Lazarus Sal
President
Republic of Belau
Koror, Belau
Western Caroline Islands 96940
Phone Int. Op. 160-652 Belau #403
Vice President: Thomas Remengesau

Commonwealth of the Northern Mariana Islands
Honorable Pedro P. Tenorio
Governor of the Northern Mariana Islands
Saipan, CNMI 96950
Phone: 011-670-6407
Lt. Gov. Pedro A. Tenorio

Guam
Honorable Ricardo J. Bordabene
Governor of Guam
Agana, Guam 96910
Phone: 011-671-472-8931
Lt. Gov. Edward D. Reyes

American Samoa
Honorable A.P. Luta
Governor of American Samoa
Pago Pago, American Samoa 96799
Phone: 011-684-635-4116
Lt. Gov. En. Hunkin

ENDNOTES

1. Headquarters, Joint Task Force Seven J-3 Division, "Orientation Guide," Part I, 61A-1433, Box 317, Orientation Guide 1 Jun 57, #101, Record Group (RG) 374, Washington National Record Center (WNRC). [A26]
2. Use and Occupancy Agreement for Land in the Trust Territory of the Pacific Islands under the Administrative Responsibility of the Department of the Interior, Document 214214, Coordination and Information Center, Las Vegas, Nevada (CIC). [F4]
3. Micronesia Support Committee, "Marshall Islands A Chronology: 1944-1981," p. 5. [A27]
4. "Marshall Islands A Chronology," p. 5. [A27]
5. "Marshall Islands A Chronology," p. 7. [A27]
6. "Marshall Islands A Chronology," p. 7. [A27]
7. Announced U.S. Nuclear Tests, DOE/NV 209, (Rev. 10), April 1990, p. 1. The time used is U.S. continental time.
8. Public Law (P.L.) 78-585.
9. U.S., Statutes at Large, Vol. 61: 3301-3305. [A1]
10. AEC 334/10, 17 Aug 51, Atomic Energy Commission Secretariat Files (hereafter Secretariat), Box 1261, Military Research and Application 7 (hereafter MR&A7) Experiments and Tests, RG 326, Department of Energy Archives (hereafter DOE Archives) [A7]; Public Law 80-204, U.S. Statutes at Large, Vol. 61: 397 [A22]; Executive Order 9875, Code of Federal Regulations Title 3 - The President 1943-1948 Compilation: 658. [A23]
11. "Marshall Islands A Chronology," p. 7. [A27]
12. Draft memorandum for the President, 20 Nov 47, by David E. Lilienthal, DMA Files, Box 3866, Sandstone-Basic Corresp. & Ref., RG 326, DOE Archives. [F11] (The underlining appears in the original document.)
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15. "Marshall Islands A Chronology," p. 9. [A27]
16. Leonard Mason, "Relocation of the Bikini Marshallese a Study in Group Migration," Ph.D. dissertation, Yale University, 1954, pp. 330-37. [F19]
17. "Marshall Islands A Chronology," p. 9. [A27]

18. Announced U.S. Nuclear Tests, DOE/NV 209, (Rev. 10), April 1990, p. 1. The time used is U.S. continental time.
19. AEC 9/8, 28 Apr 48, Secretariat, Box 4944, AEC 682 Eniwetok Atoll (12-1-47), RG 326, DOE Archives [A25]; AEC 9/9, 4 May 48, Secretariat, Box 4944, AEC 682 Eniwetok Atoll (12-1-47), RG 326, DOE Archives. [A24]
20. U.S., Statutes at Large, Vol. 62: 1434-1435. [A2]
21. U.S., Statutes at Large, Vol. 62: 584-585. [A3]
22. AEC 9/13, 16 Jul 49, enclosing Ramsey to Capt. James S. Russell, 1 Jul 48, Secretariat, Box 4944, AEC 682 Eniwetok Atoll (12-1-47), RG 326, DOE Archives. [F12]
23. "Marshall Islands A Chronology," p. 11. [A27]; Robert C. Kiste, The Bikinians: A Study in Forced Migration (Menlo Park, CA: Cummings Publishing Co., 1974), pp. 92-102. [F1]
24. AEC 9/14, 29 Mar 49, Secretariat, Box 4944, AEC 682 Eniwetok Atoll (12-1-47), RG 326, DOE Archives. [A4]
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26. AEC 334/10. [A7]
27. AEC 334/10 [A7]; Executive Order 10265, 29 Jun 51, Code of Federal Regulations Title 3-- The President 1949-1953 Compilation, pp. 766-767. [A28]
28. 578th AEC Meeting Minutes, 12 Jul 51, Secretariat, Box 1261, MR&A 7 Greenhouse, RG 326, DOE Archives. [F32]
29. AEC 334/10. [A7]
30. U.S., Statutes at Large, Vol. 65: 248-265. [A5]
31. AEC 334/10. [A7]
32. U.S., Statutes at Large, Vol. 65: 350. [A6]
33. Gordon Dean to Boyer, 17 Apr 52, Former Commissioner Dean Collection, Box 0002, Unclassified Reader File-April 1952, RG 326, DOE Archives. [F6]
34. Gordon Dean, chairman, AEC, to James P. Davis, director, Office of Territories, 12 Sep 52, Department of the Interior (DOI), Secretariat, Box 4928, MR&A7 Castle, Vol. I, RG 326, DOE Archives. [A8]
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37. Gordon Dean to Gen. Dwight D. Eisenhower, 7 Nov 52, Secretariat, Box P, MR&A-7 IVY Vol. 2, RG 326, DOE Archives. [F21]

38. Phillips to chief of naval operations, 20 Dec 52, enclosure 9 in Col. Vincent G. Huston, acting director of military application, to K. D. Nichols, 30 Mar 54, Vol. 3 Footnote File Job 1330, Box 2, FN Docs Chap. 6: 48-65, RG 326, DOE Archives. [X7]
39. Enclosure 9 in Col. Vincent G. Huston to Nichols, 30 Mar 54. [X7]
40. AEC 597/8, 12 Jan 53, enclosing Henry D. Smyth to James P. Davis, 6 Jan 53, Secretariat, Box 4928, MR&A7 Castle, Vol. 1, RG 326, DOE Archives. [A9]
41. Elbert D. Thomas to James P. Davis, director of the DOI office of territories, 5 Feb 53, enclosure 11 in Col. Vincent G. Huston to K. D. Nichols, 30 Mar 54. [X7]
42. AEC Press Release No. 478, 2 Apr 53, Press Releases, RG 326, DOE Archives. [A53]
43. K. E. Fields to the chief of naval operations, 28 Apr 53, enclosure 13 in Col. Vincent G. Huston to K. D. Nichols, 30 Mar 54. [X7]
44. Brig. Gen. K. E. Fields to William Mitchell, general counsel, attention: Franklin N. Parks, 7 May 53, Plants, Lands, Buildings, and Laboratories (PLB & L) (NTS, Eniwetok, Bikini - FY-53), RG 326, Albuquerque Operations Office (ALOO). [F9]
45. AEC 597/19, July 14, 1953, Secretariat, Box 4928, MR&A7 Castle Vol. 2, RG 326, DOE Archives. [X2]
46. Memorandum by Edward Heller, 22 Oct 53, Records of the Joint Committee on Atomic Energy (JCAE), General Subject Files, Box 80, Weapons Tests Pacific Proving Ground (Castle) 1954, RG 128, National Archives and Records Administration (NARA). [X3]
47. Commander-in-chief, U.S. Pacific Fleet, to commander, Joint Task Force Seven (JTF7), 31 Oct 53, Records Center C-2D-41, CASTLE Radiological Safety, RG 326, Los Alamos National Laboratory (LANL). [F2]
48. AEC 597/32, 15 Dec 53, Secretariat, Box 4928, MR&A7 Castle, Vol. 2, RG 326, DOE Archives. [A10]
49. Clarkson to commander in chief, U.S. Pacific Fleet, 11 Dec 53, "Radiological Hazards in the Marshall Islands Area during CASTLE," Records Center, C-2 D-41, Castle Radiological Safety, RG 326, LANL [F3]; "Safety Measures during Operational Phase of CASTLE," Records Center, C-2 D-41, Castle Radiological Safety, RG 326, LANL [F13]
50. AEC 597/43, 18 Mar 54, Secretariat, Box 4929, MR&A7 Castle, Vol. 3, RG 326, DOE Archives [A11]; Answer to State Department 'List of Possible Questions' attached to K. D. Nichols to W. Sterling Cole, 14 Sep 54, Joint Committee on Atomic Energy General Correspondence (JCAE Correspondence) Box 712, "Weapons Tests (Eniwetok) 1954 1955," RG 128, NARA. [A18]
51. Announced U.S. Nuclear Tests, p. 4.

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D R A F T

MARSHALL ISLANDS CHRONOLOGY

TABLE OF CONTENTS

INTRODUCTION ii

HISTORICAL BACKGROUND iv

CHRONOLOGY 1

APPENDIX A - SECTIONS OF THE COFA 106

APPENDIX B - ABBREVIATIONS 110

APPENDIX C - LIST OF GROUPS INVOLVED WITH
MARSHALL ISLANDS DEVELOPMENT 114

ENDNOTES 116

LIST OF MAPS 155

275. SECY-75-99, 30 Jul 74, Secretariat, Box 7978, MH&S 3 Radiation, RG 326, DOE Archives. [C81]
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559. Harry I. Kohn to George Miller et al., 14 Nov 88, Brown, Rongelap 1988, File 2 89, NV. [H58]
560. Harry U. Brown to Oscar de Brum, 26 Oct 88, Rudolph's files, Letter files, Letters-Marshall Islands 1989, EH. [D75]

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565. Harry U. Brown to Jeton Anjain, 5 Sep 89, Rudolph's files, D-file, Marshall Islands 1989, EH. [D85]
566. Harry U. Brown to J. E. Rudolph, 17 Feb 89, Brown, Rongelap File 3 89, NV. [H60]
567. Harry U. Brown to N. C. Aquilina, 17 Mar 89, Rudolph's files, D-file, Marshall Islands 1989, EH. [D79]
568. "Department of Energy (DOE) Medical, Environmental, and Radiological Safety Programs in the Marshall Islands 1989-1991," Rudolph's files, Letter files, Letters-Marshall Islands 1989, EH. [D78]
569. Rongelap Reassessment Project, "Rongelap Reassessment Project, Report, Corrected Edition," 1 Mar 89, Rudolph's files, D-file, Marshall Islands 1989. [D89]
570. Brown to Aquilina, 17 Mar 89, Rudolph's files, D-file, Marshall Islands 1989, EH. [D79]
571. W. D. Jackson to Joe Dryden, 28 Apr 89, Brown, BNL Medical 89, NV. [H63]
572. Oscar de Brum to members of the Nitijela, 22 Mar 90, Brown, NV. [H65]
573. Roger Ray, "Enjebi Information Summary," Apr 89, with attached "Author's Note," Ray's Files. [H74]
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575. Troy E. Wade II to Tom Bevill, 7 Apr 89, Brown, BNL Medical 89, NV. [H61]
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580. Transcript of 2 Aug 89 testimony of DOE Secretary James D. Watkins before the Senate Committee on Governmental Affairs on the Department of Energy's Radiation Health Effects Research Program and Working Conditions at DOE Sites, pp. 24-25, attached to Jacqueline Knox Brown to the Hon. John Glenn, 23 Oct 89, DOE Executive Secretariat Collection. [ES5]
581. Charles B. Meinhold et al. to Rudolph, 5 Jun 89, Rudolph's files, 5 Jun 89, Letter Files, Letters-Marshall Islands 1989, EH. [D81]
582. William L. Robison to Harry U. Brown and Charles B. Meinhold, 10 Jul 89, Brown, NV. [H67]
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584. Transcript of testimony of DOE Secretary James D. Watkins, 2 Aug 89, pp. 18, 21-24, attached to Jacqueline Knox Brown to the Hon. John Glenn, 23 Oct 89, Executive Secretariat Collection. [ES5]
585. Harry U. Brown, memo for the record, 7 Aug 89, Rudolph's files, Letter Files, Letters-Marshall Islands 1989, EH. [D82]
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589. W. D. Jackson to J. H. Dryden, 16 Oct 89, Brown, BNL Medical 89, NV. [H70]
590. Larry L. Morgan to William H. Adams, 17 Oct 89, DOE, Rudolph's files, Letter files, Letters-Marshall Islands-1989, EH. [D86]
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592. Ron de Lugo to the Hon. James D. Watkins, 23 Oct 89, DOE Executive Secretariat Collection. [ES6]
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594. "Statement of Senator Jeton Anjain on behalf of the Rongelap Atoll Local Government before the Subcommittee on Insular and International Affairs, Committee on Interior and Insular Affairs," DOE Legislative Affairs Library. [G79]

595. "Statement by John Rudolph," 16 Nov 89, Brown, NV [H72]; John C. Tuck to Frank Press, 2 May 90, DOE Executive Secretariat Collection [ES3]; "Summary of Hearing Before the Subcommittee on Insular and International Affairs, November 16, 1989," 22 Nov 89, Rudolph's Files, D-File, Marshall Islands 1989, EH. [G70]

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597. Kunio D. Lamari to Hunting Hardisty, 7 Dec 89, Rudolph's files, Letter files, Letters-Marshall Islands 1989, EH. [D88]

598. Samuel Thomsen to Gerald Watson, 9 Jan 90, Brown, Runit, NV. [G48]

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601. Charles B. Meinhold to Harry U. Brown, 3 Jan 90, Rudolph's files, D-File, Marshall Islands 1990, EH. [D91]

602. Harry U. Brown to Stephen Simon, 13 Jan 90, Brown, NV. [G47]

603. Draft, James D. Watkins to J. Bennett Johnston, 9 Jan 90, Rudolph's files, Letter files, Letters-Marshall Islands 1990, EH. [D92]

604. Thomsen to Watson, 9 Jan 90. [G48]

605. Harry U. Brown to Stephen Simon, 13 Jan 90, Rudolph's files, Letter files, Letters-Marshall Islands 1990, EH. [D93]

606. William D. Jackson to J. H. Dryden, 1 Feb 90, Rudolph's files, Letter files, Letters-Marshall Islands 1990, EH. [D96]

607. John E. Rudolph to Christine Gebbie, 22 Jan 90, Rudolph files, D-file, Marshall Islands 1990, EH. [D94]

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611. J. H. Dryden to Addressees, 16 Feb 90, Rudolph's files, Letter files, Letters-Marshall Islands 1990, EH. [D97]
612. William D. Jackson to J. H. Dryden, 18 May 90, Brown, BNL Medical, NV. [G58]
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615. J. H. Dryden to Addressees, 18 Apr 90, Rudolph's files, Letter files, Letter-Marshall Islands 1990, EH. [D98]
616. Harry U. Brown to W.H. Adams, et al., 18 Apr 90, Brown, NV. [G54]
617. Charles B. Meinhold to Harry U. Brown, 30 Apr 90, Brown, NV. [G53]
618. Bernd Franke, "Why the Rongelap Reassessment Project Did Not Fulfill Its Mission. Rongelap Versus Eniwetak and Bikini: Equal Treatment?" Institute for Energy and Environmental Research, May 90, Rudolph's files, EH. [D99]
619. David M. Weiman to Joseph C. Karpinski, 1 May 90, Brown, NV. [G57]
620. Brush to Ray, 9 Jul 90, DOE Executive Secretariat Collection [ES2]; John C. Tuck to Frank Press, 2 May 90, Brown, NV. [G55]
621. Sen. Glenn to Secretary James Watkins, 4 May 90, Brown, NV. [D122]
622. "Statement of Senator Jeton Anjain on Behalf of the Rongelap Atoll Local Government and the Rongelap People Presently Living in Exile," Apr 1990, Brown, NV. [G51]
623. Harry U. Brown to David M. Weiman, 7 May 90, Brown, NV. [G56]
624. E. Cooper Brown to Forrest Six, 11 May 90, Brown, NV. [G66].
625. Frank Press to John C. Tuck, 18 May 90, DOE Executive Secretariat Collection. [ES3]
626. E. Cooper Brown to Bob Alvarez, 31 Aug 90, Bell's files, EH. [D102]
627. Peter N. Brush to the Secretary, 20 Jul 90, DOE Executive Secretariat Collection. [ES4]
628. Stella Guerra to Harry Brown, 2 Jul 90, Brown, Eniwetak, NV [G59]; J.H. Dryden to Harry Brown, 10 Sep 90, Brown, Eniwetak, NV. [G60]
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- 631. J. H. Dryden to Addressees, 6 Aug 90, Rudolph's files, Letter files, Letters-Marshall Islands 1990, EH. [D101]
- 632. McDonald E. Wrenn to David Wheeler, 27 Aug 90, Brown, NV. [G62]
- 633. William D. Jackson to J.H. Dryden, 19 Oct 90, Brown, BNL Medical (91), NV. [G63]
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- 636. Stella Guerra to J.H. Dryden, 25 Oct 90, Brown, Enewetak (91), NV. [G28]
- 637. Harry U. Brown to Oscar de Brum, 26 Oct 90, Brown, NV. [G64]
- 638. Stella Guerra to Harry U. Brown, 6 Nov 90, Brown, Enewetak (91), NV. [G65]

LIST OF MAPS

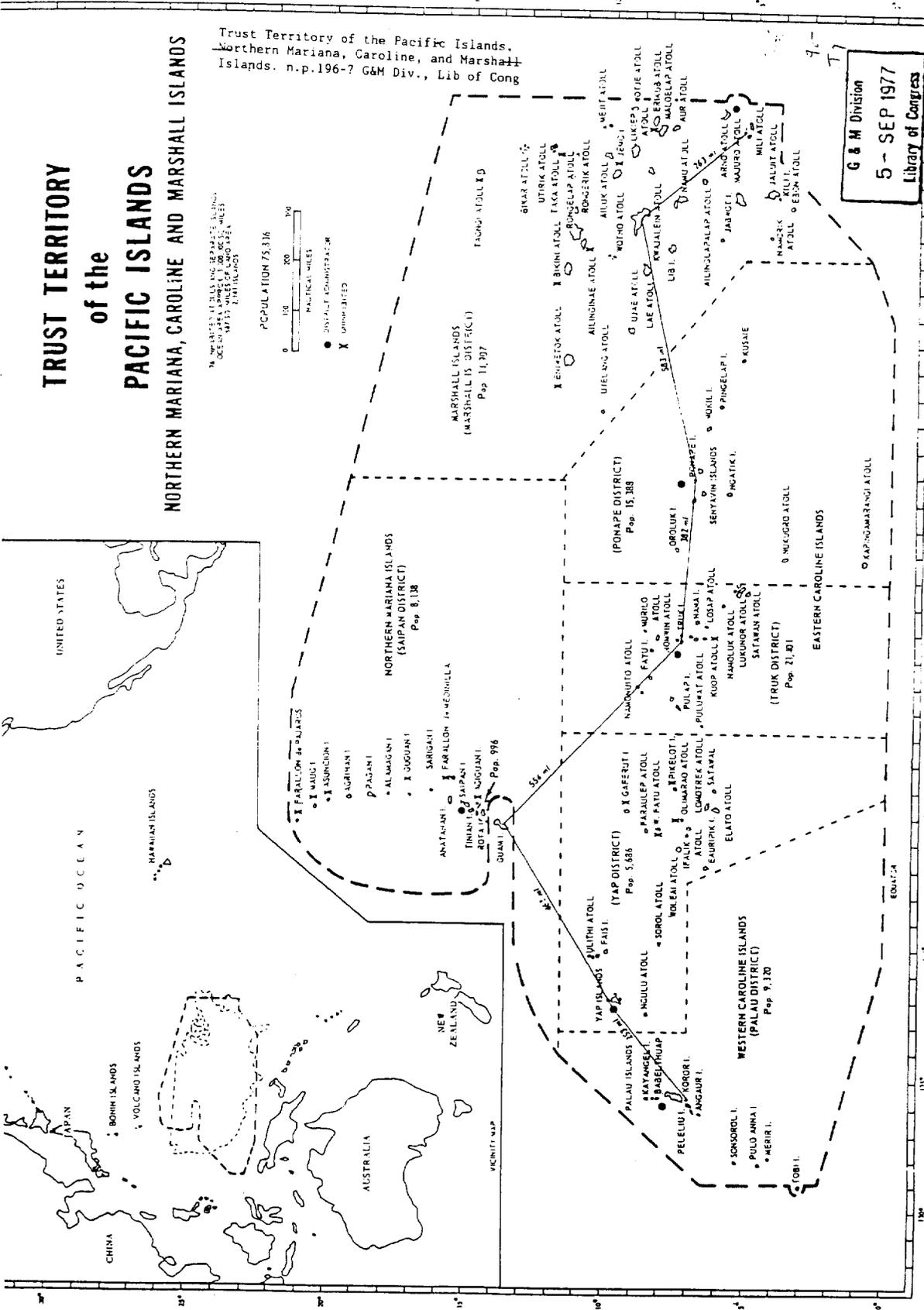
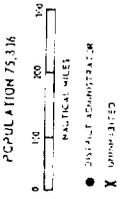
1. Pacific Ocean showing location of Marshall Islands in relation to Hawaiian Islands and United States
2. Trust Territory of the Pacific Islands
3. Marshall Islands
4. Detailed map of Bikini Atoll showing location of target ships during OPERATION CROSSROADS in 1946
5. Extended CASTLE danger area
6. Ship positions on 2 March, 24 hours after CASTLE BRAVO
7. Radiological surveys of several Marshall Island atolls, 18 Mar 54
8. Nuclear Detonation Sites on Enewetak Atoll
9. Background map showing relocations from 1946 to June 1954
10. Detail map of Ailinginae Atoll
11. Detail map of Bikar Atoll
12. Detail map of Bikini Atoll
13. Detail map of Enewetak Atoll
14. Detail map of Kwajalein Atoll
15. Detail map of Majuro Atoll
16. Detail map of Rongelap Atoll
17. Detail map of Rongerik Atoll
18. Detail map of Ujelang Atoll
19. Detail map of Utirik Atoll
20. Detail map of Wotje Atoll

TRUST TERRITORY of the PACIFIC ISLANDS

NORTHERN MARIANA, CAROLINE AND MARSHALL ISLANDS

Trust Territory of the Pacific Islands.
Northern Mariana, Caroline, and Marshall
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POPULATION 75,316
NORTHERN MARIANA ISLANDS (SAIPAN DISTRICT)
MARSHALL ISLANDS (MARSHALL IS DISTRICT)
CAROLINE ISLANDS (YAP DISTRICT)
CAROLINE ISLANDS (PULAP DISTRICT)
CAROLINE ISLANDS (WESTERN CAROLINE DISTRICT)



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MARSHALL ISLANDS

ENIWETOK ATOLL

BIKINI ATOLL

BIKAR

UTIRIK TAKA

RONGERIK RONGFLAP AILINGNAE

UJELANG

WOTHO

AILUK MEJIT

LIKIEP JEMO

ROI NAMUR

UJAE LAE

KWAJALEIN ATOLL

WOTJE ATOLL

MALOELAP ATOLL

MAUR

NAMU JABWOT

PONAPE

MOKIL

PINGELAP

AILINGLAPALAP ATOLL

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NAMORIK

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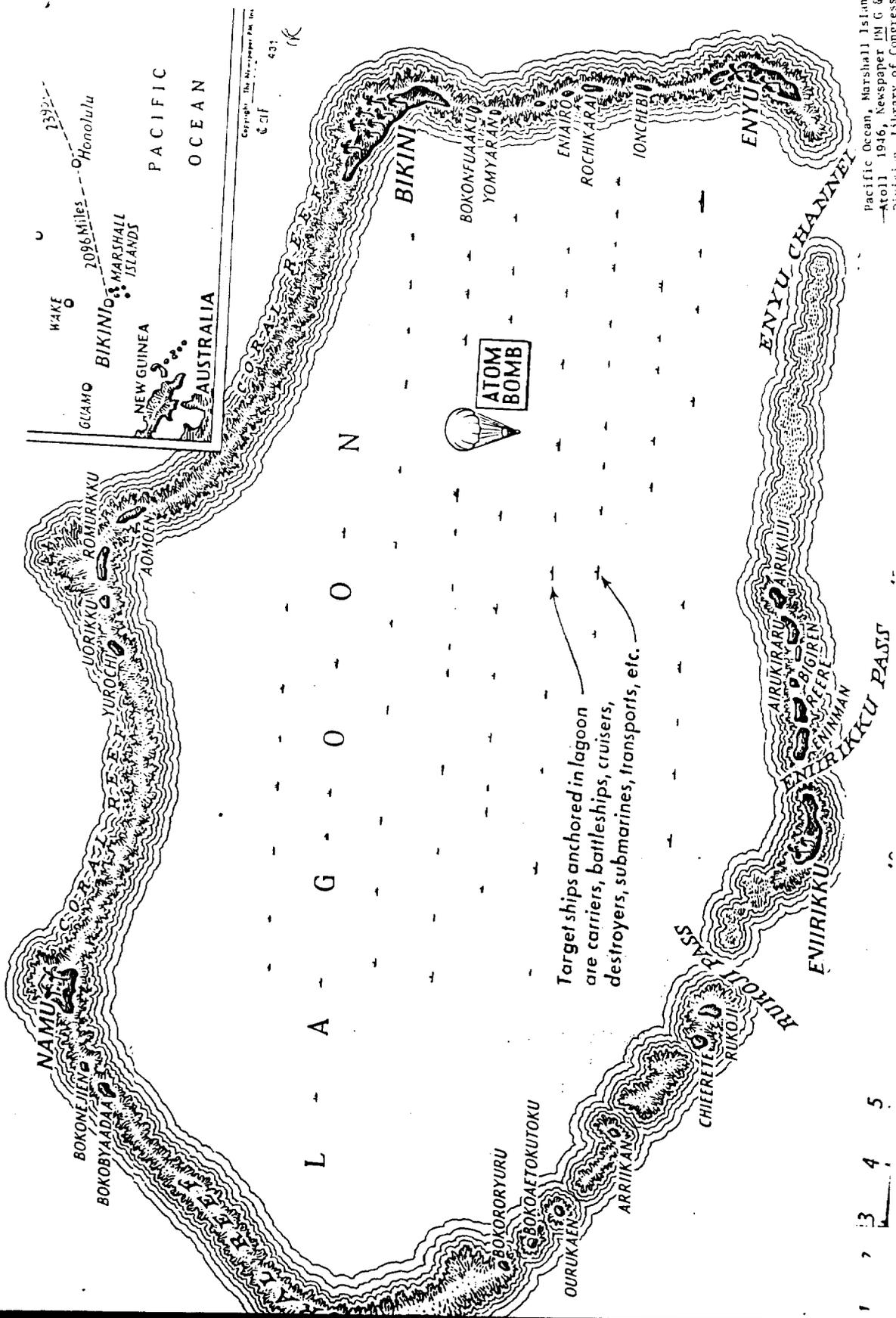
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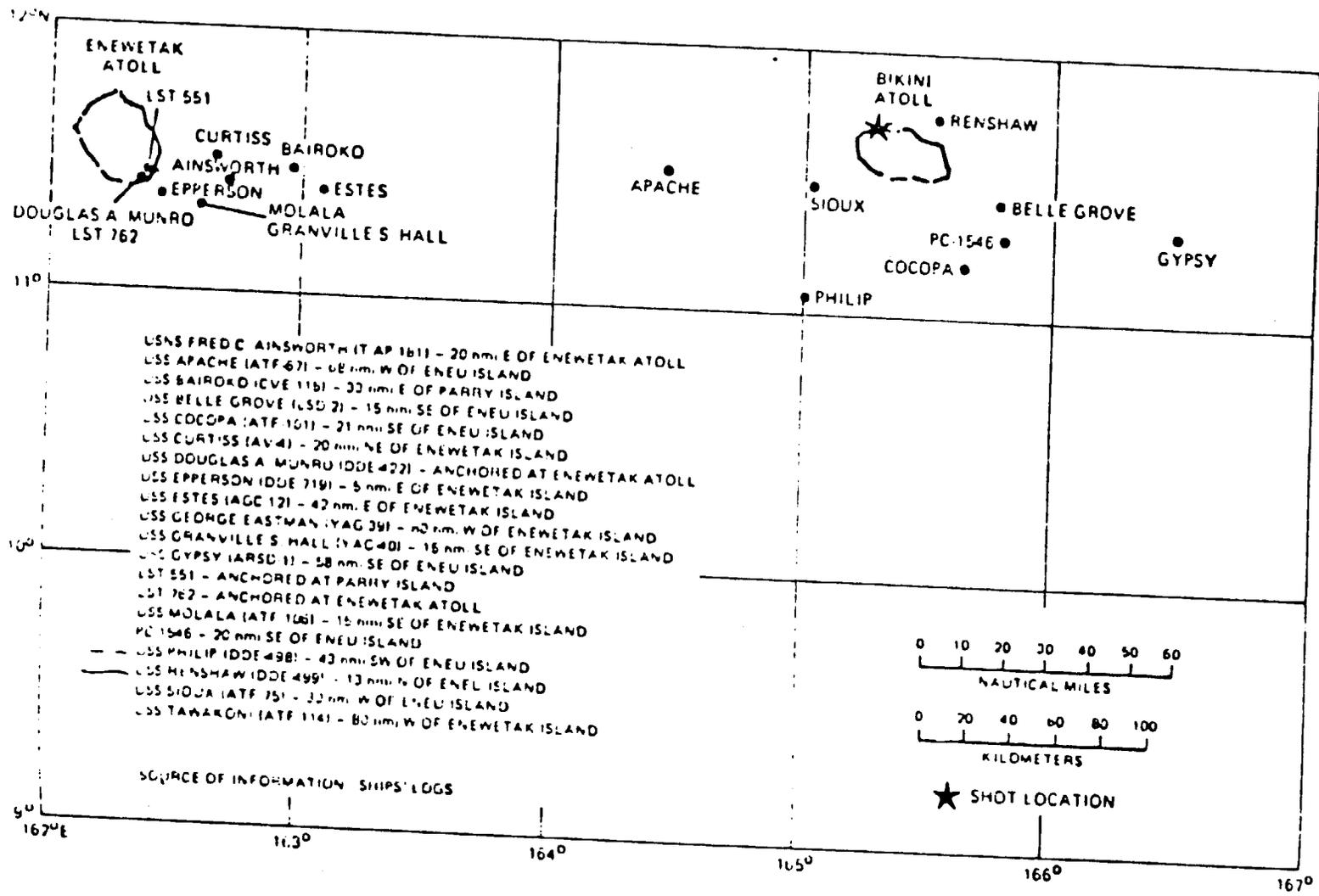


Figure 65. Ship positions on 2 March, 24 hours after CASTLE, BRAVO.

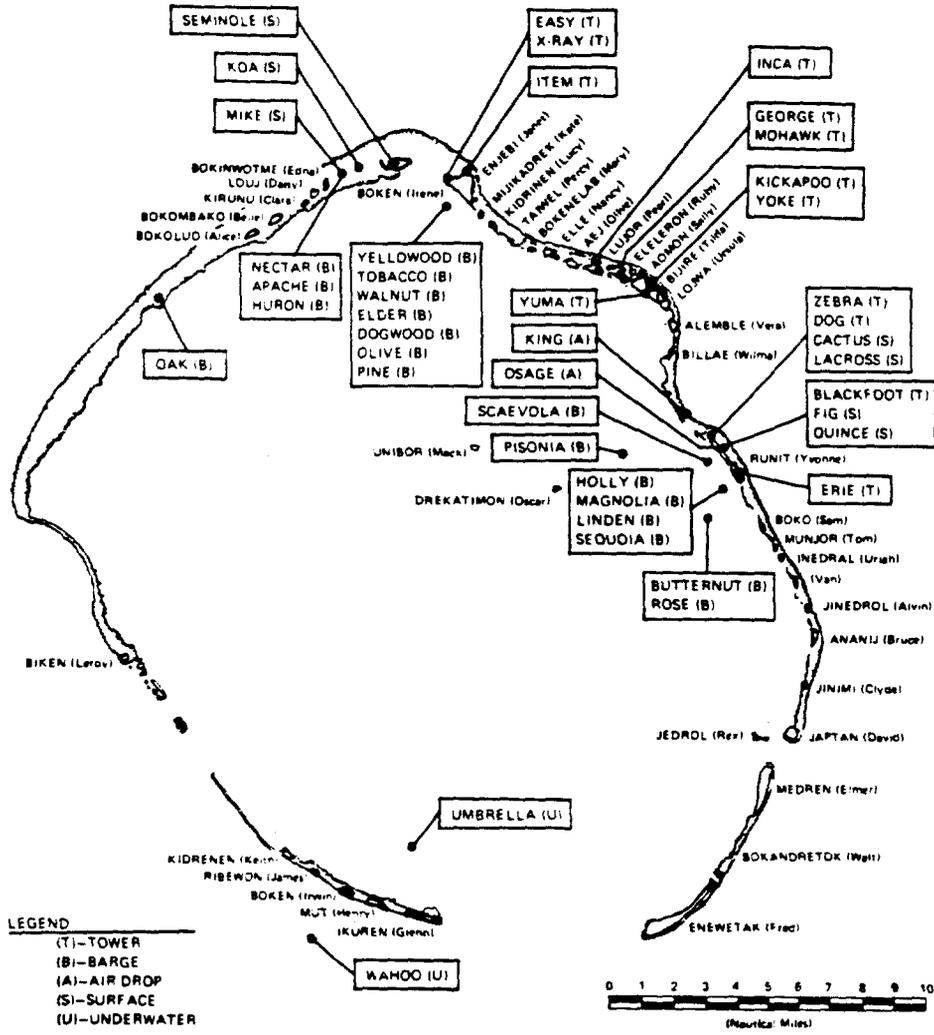


FIGURE 1-53. NUCLEAR DETONATION SITES ON ENEWETAK ATOLL.

Source: Defense Nuclear Agency, The Radiological Cleanup of Enewetak Atoll, 1981.

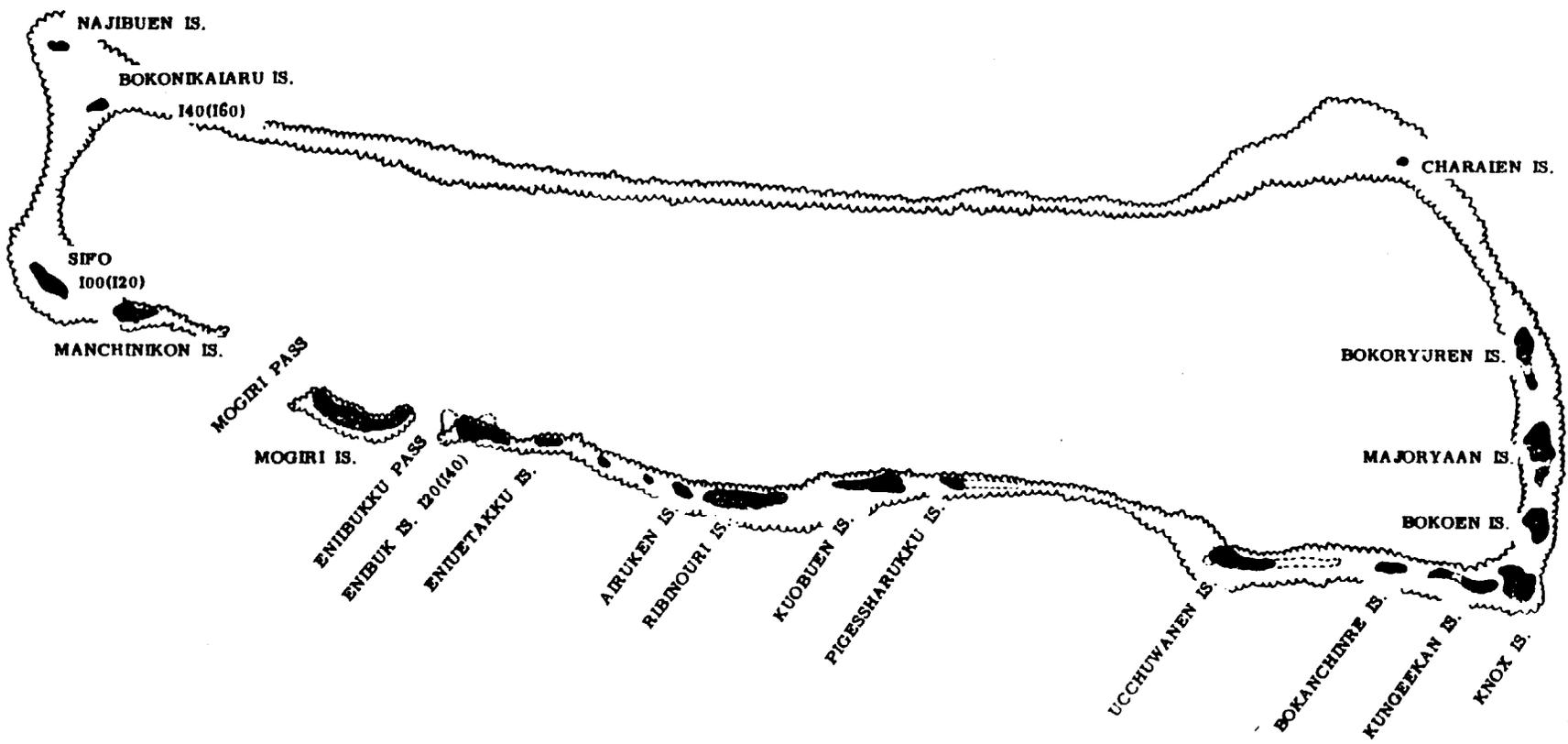
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AILINGINAE ATOLL

RADIOLOGICAL SURVEY

10 MARCH

AVERAGE READING (MAX. READING)
MR/HR.



Source: Memorandum on Radiological Surveys of Several Marshall Islands Atolls, 18 March 1954, LANL Records Center, F-43, B-195, Castle Fallout Observations

FIG. 5

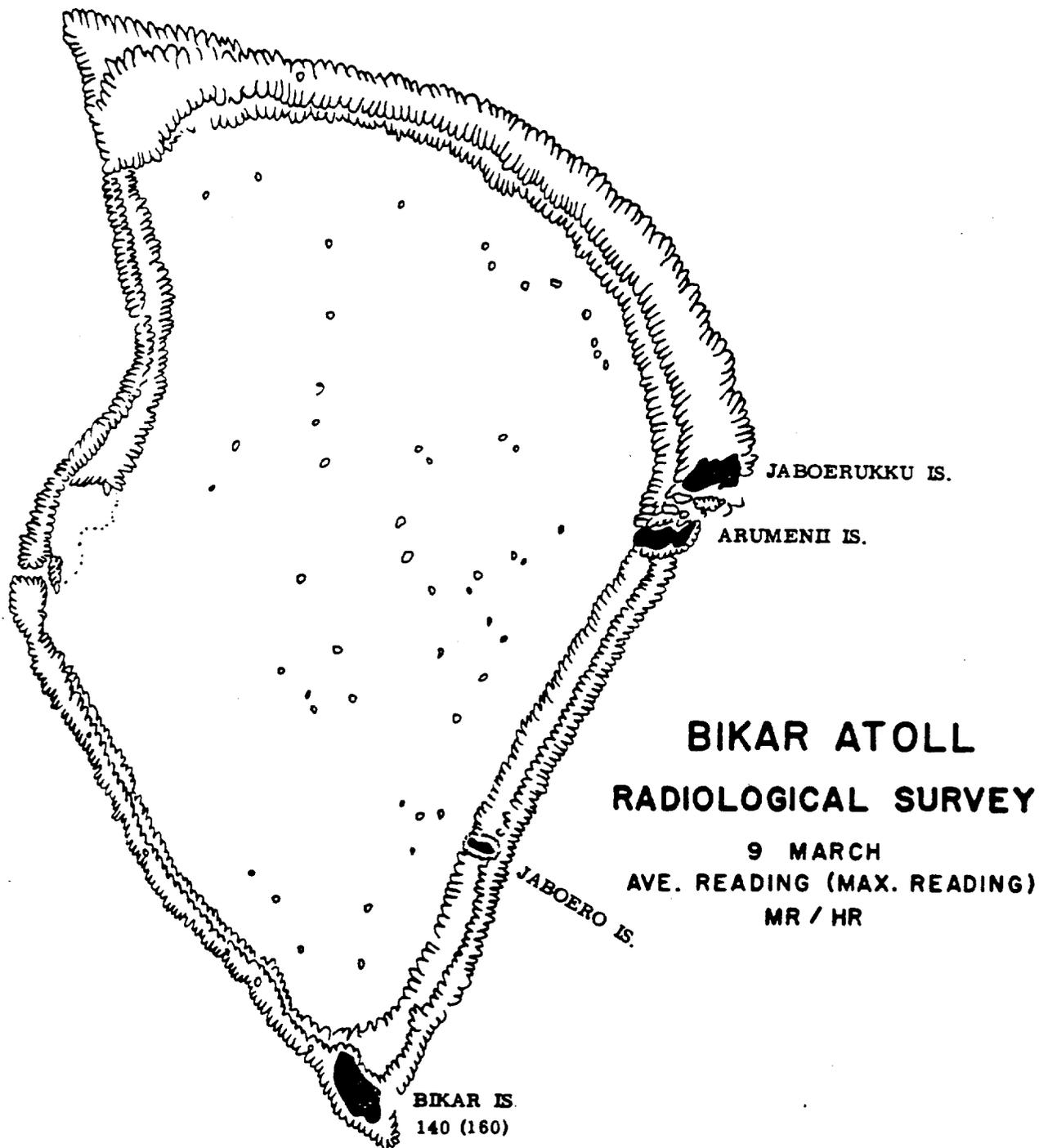
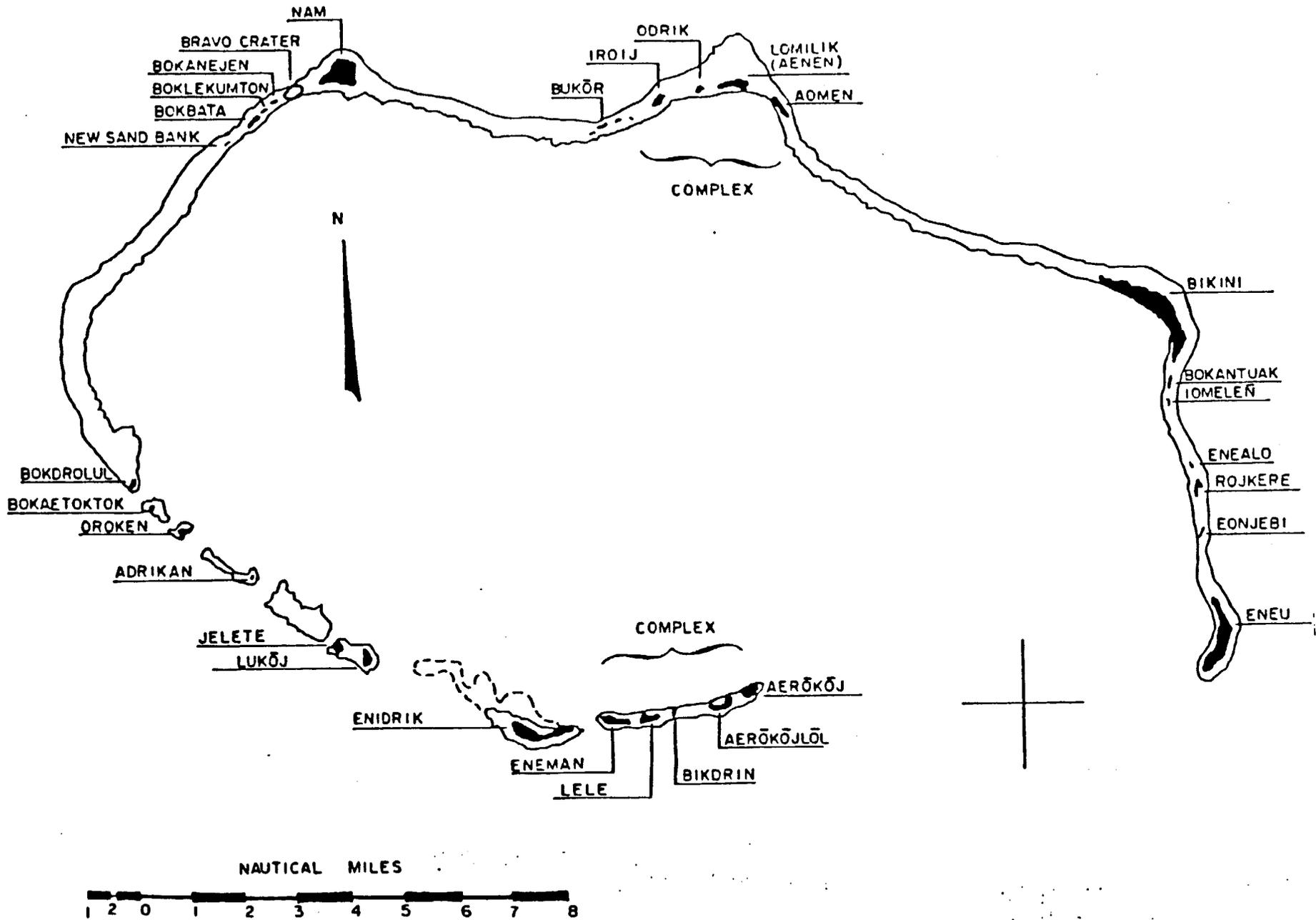


FIG. 3

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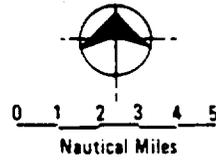
Source: Memorandum on Radiological Surveys
of Several Marshall Islands Atolls,
18 March 1954, LANL Records Center,
F-43, B-195, Castle Fallout Observations



Map

Bikini Atoll NVO-97 Summary of the 1969 and 1970 Bikini Surveys, February 1971, McCraw Collection, Box 9, Summary Report of the 1969 and 1970 Bikini Surveys, DOE Archives RG 326

FIGURE I. BIKINI ATOLL



| | Enjebi | Lojwa | Japtan | Medren | Enewetak |
|----------|--------|-------|--------|--------|----------|
| Enjebi | | 6 | 17 | 17 | 20 |
| Lojwa | 6 | | 12 | 13 | 16 |
| Japtan | 17 | 12 | | 2 | 6 |
| Medren | 17 | 13 | 2 | | 5 |
| Enewetak | 20 | 16 | 6 | 5 | |

MILEAGE TABLE
(Nautical Miles From Dock to Dock)

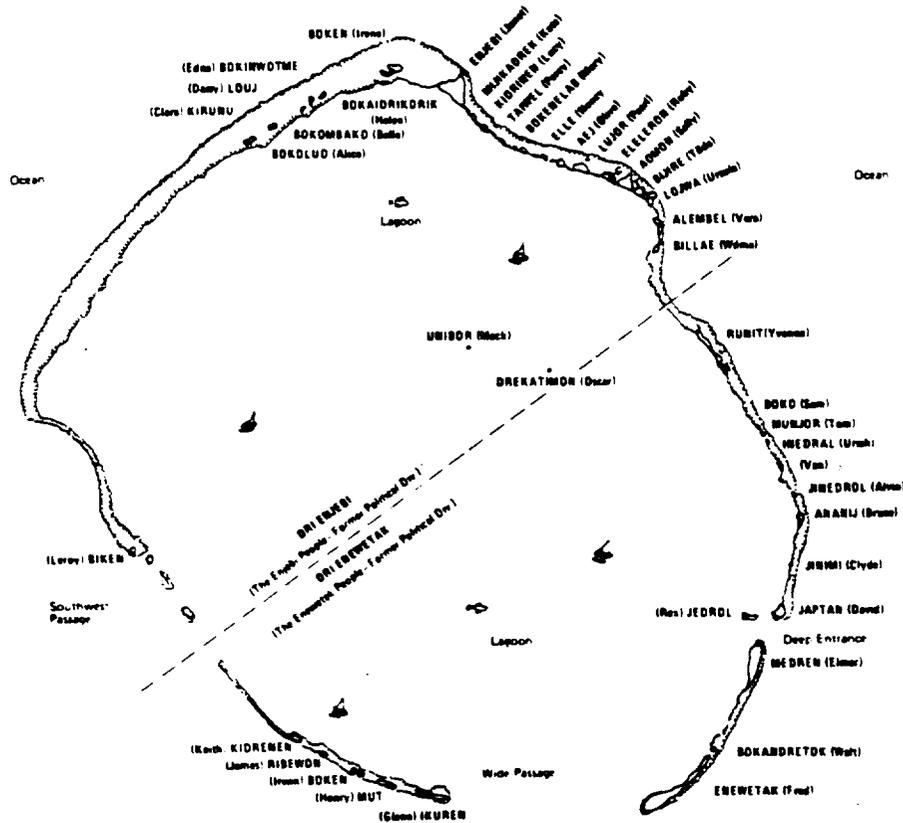
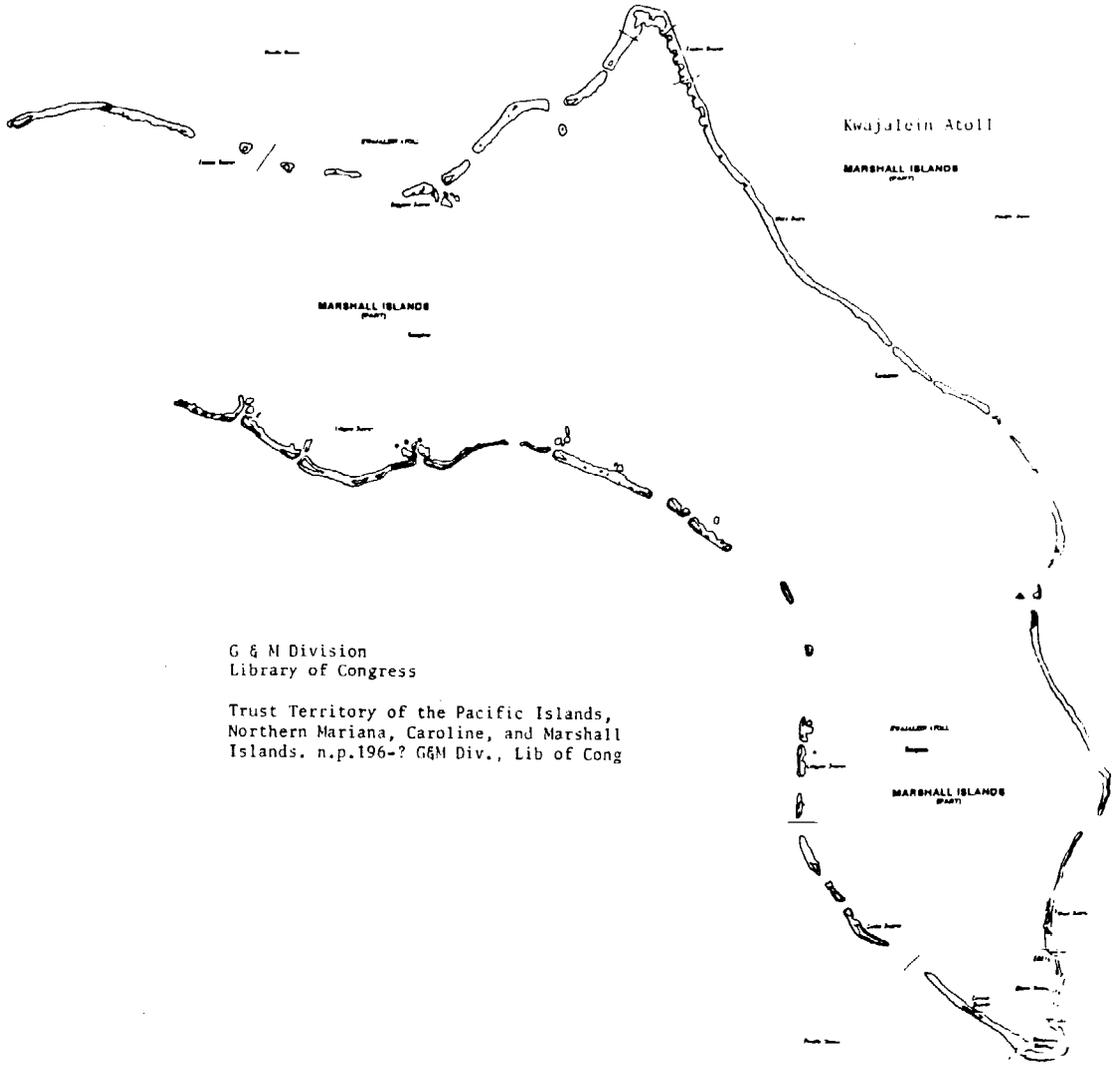


FIGURE 14. ISLANDS OF ENEWETAK ATOLL.

Source: Defense Nuclear Agency, The Radiological Cleanup of Enewetak Atoll, 1981.

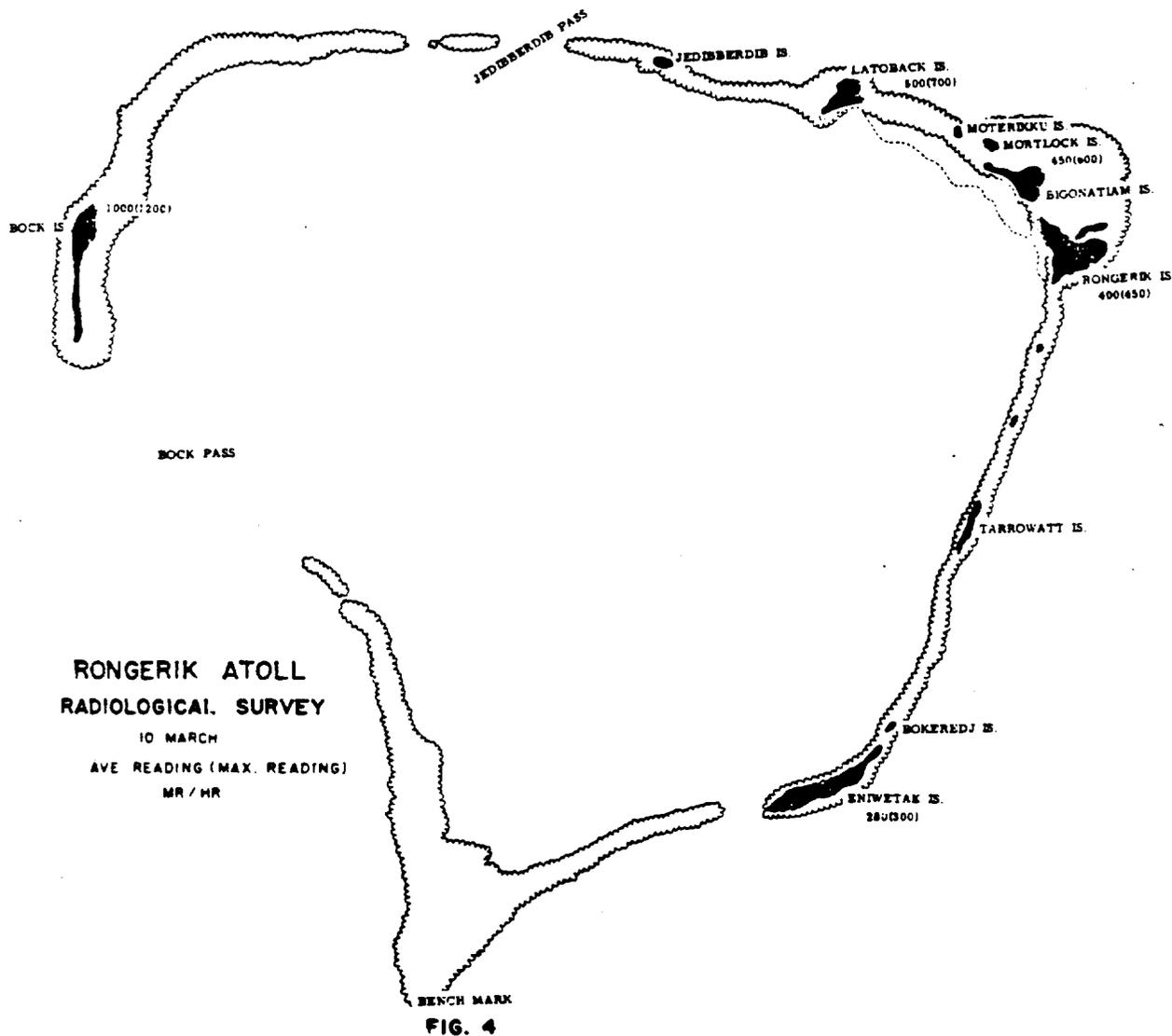


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Source: Memorandum on Radiological Surveys of Several Marshall Islands Atolls, 18 March 1954, LANL Records Center, F-43, B-195, Castle Fallout Observations

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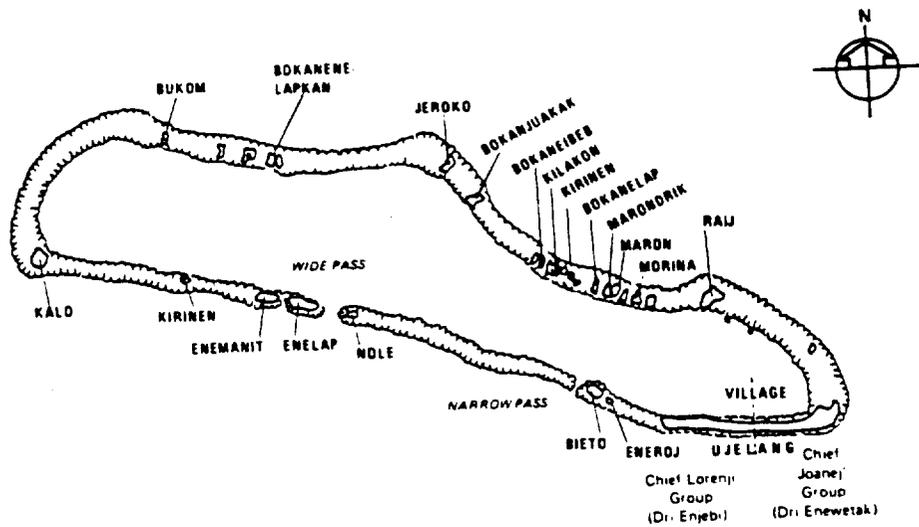


FIGURE 1-35. UJELANG ATOLL SHOWING RESIDENCE ISLANDS.

Source: Defense Nuclear Agency, The Radiological Cleanup of Enewetak Atoll, 1981.

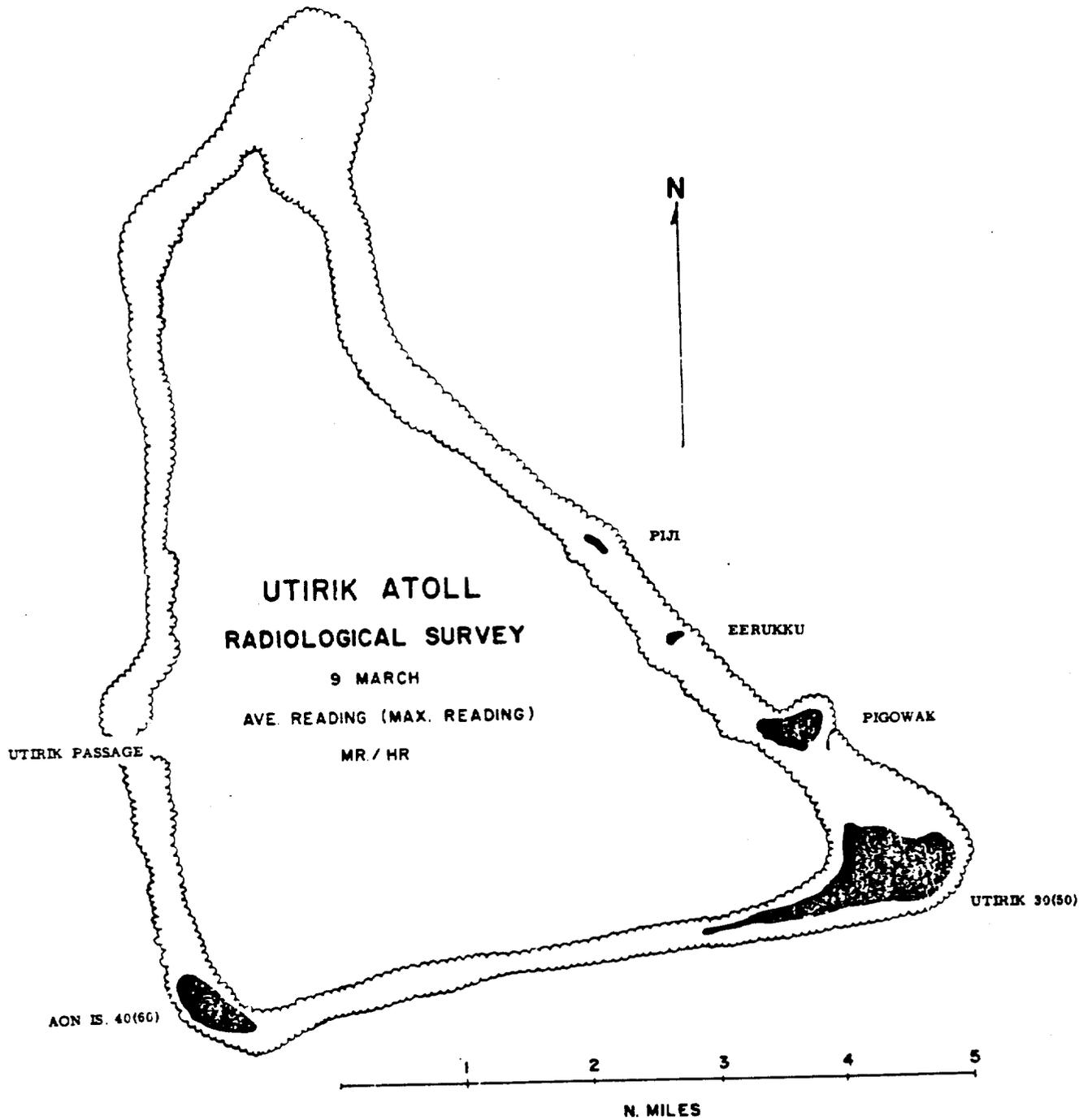


FIG. 2

Source: Memorandum on Radiological Surveys
of Several Marshall Islands Atolls,
18 March 1954, LANL Records Center,
F-43, B-195, Castle Fallout Observations

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INSET R

WOTJE ATOLL

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