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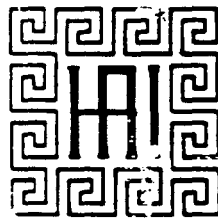
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D R A F T

# Marshall Islands Chronology

1944 to 1990

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**D R A F T**

**MARSHALL ISLANDS CHRONOLOGY**

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## 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.<sup>1</sup>

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.)<sup>2</sup>

Jan 46

**WEAPON TESTING**

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

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.<sup>4</sup>

7 Mar 46

**RELOCATION**

The U.S. Navy evacuates Bikini Atoll inhabitants to Rongerik Atoll.<sup>5</sup>

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.<sup>6</sup>

1 and 25 Jul 46

**WEAPON TESTING**

The United States detonates two nuclear weapons at Bikini in Operation Crossroads.<sup>7</sup>

1 Aug 46

**ADMINISTRATION**

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

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.<sup>9</sup>

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.<sup>10</sup>

Aug 47

**MEDICAL  
RELOCATION**

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

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."<sup>12</sup>



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.<sup>13</sup>

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.<sup>15</sup>

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.<sup>16</sup>

14 Mar 48

**RELOCATION**

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

16 Apr - 16 May 48

**WEAPON TESTING**

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

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.<sup>19</sup>

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.<sup>20</sup>

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.).<sup>21</sup>

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."<sup>22</sup>

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.<sup>23</sup>

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.<sup>24</sup>

9 Apr - 26 May 51

**WEAPON TESTING**

In Operation Greenhouse the United States detonates four nuclear weapons at Enewetak.<sup>25</sup>

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."<sup>26</sup>

1 Jul 51

**ADMINISTRATION**

An executive order transfers the T.T. civil administration to the Secretary of Interior.<sup>27</sup>

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.<sup>28</sup>

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.<sup>29</sup>

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).<sup>30</sup>

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.<sup>31</sup>

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).<sup>32</sup>

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.<sup>33</sup>

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.<sup>34</sup>

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.<sup>35</sup>

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1-16 Nov 52

**RADIATION  
WEAPON TESTING**

The United States conducts two nuclear tests at Enewetak in Operation Ivy.<sup>36</sup> 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.<sup>37</sup>

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.<sup>38</sup>

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.<sup>39</sup>

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."<sup>40</sup>

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'.<sup>41</sup>

2 Apr 53

**WEAPON TESTING**

The AEC enlarges the PPG to include Bikini as well as Enewetak.<sup>42</sup>

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.<sup>43</sup>

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.<sup>44</sup>

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.<sup>45</sup>

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.<sup>46</sup>

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."<sup>47</sup>

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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.<sup>48</sup>

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.<sup>49</sup>

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."<sup>50</sup>

1 Mar - 15 May 54

**RADIATION  
WEAPON TESTING**

Operation Castle tests are conducted at Bikini.<sup>51</sup>

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."<sup>52</sup>

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

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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.<sup>53</sup>

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

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.<sup>55</sup>

According to later estimates, the thyroid glands of young Marshallese children absorb approximately eleven microcuries of iodine<sup>131</sup> and from 700 to 1400 rads.<sup>56</sup>

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.<sup>57</sup>

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.<sup>58</sup>

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

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.<sup>60</sup>

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.<sup>61</sup>

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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.<sup>62</sup>

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."<sup>63</sup>

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.<sup>64</sup>

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.<sup>65</sup>

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 ruthenium<sup>106</sup> and strontium<sup>90</sup> and <sup>90</sup>.<sup>66</sup>

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.<sup>67</sup>

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.<sup>68</sup>

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.<sup>69</sup>

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.<sup>70</sup>

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.<sup>71</sup>

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.<sup>72</sup>

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.<sup>73</sup>

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."<sup>74</sup>

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.<sup>75</sup>

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.<sup>76</sup>

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."<sup>77</sup>

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.<sup>78</sup>

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.<sup>79</sup>

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.<sup>80</sup>

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 iodine<sup>131</sup> of about 50 microcuries accompanied by shorter-lived iodine isotopes equivalent to about 5 millicuries of iodine<sup>131</sup> at the time of uptake. The estimated total integrated dose to the thyroid is about 130 "rep" of which 50 "rep" is from iodine<sup>131</sup>. Shipman gives estimated body burdens of other nuclides; he finds plutonium as less than one-half of the maximum accepted permissible amount.<sup>81</sup>

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.<sup>82</sup>

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.<sup>83</sup>

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.<sup>84</sup>

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."<sup>85</sup>

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.<sup>86</sup>

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.<sup>87</sup>

24 May 54

**RADIATION  
RELOCATION**

Gordon Dunning of AEC reports that the highest strontium<sup>90</sup> value on Naen Island is 0.5 microcuries per square foot and on Rongelap  $1.6 \times 10^{-2}$  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 strontium<sup>90</sup> uptake; and that weathering may eliminate a small amount of the strontium activity. Therefore, Dunning thinks that the amount of strontium<sup>90</sup> in the soils should not prevent a return of the Rongelapese to their islands.<sup>88</sup>

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.<sup>89</sup>

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.<sup>90</sup>

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.<sup>91</sup>

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.<sup>92</sup>

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.<sup>93</sup>

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.<sup>94</sup>

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.<sup>95</sup>

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.<sup>96</sup>

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.<sup>97</sup>

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

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.<sup>99</sup>

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.<sup>100</sup>

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

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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.<sup>101</sup>

8 and 18 Dec 54

**CONTRACTOR  
RADIATION**

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

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.<sup>103</sup>

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.<sup>104</sup>

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

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.<sup>106</sup>

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. Zirconium<sup>95</sup>.

niobium<sup>95</sup> and ruthenium<sup>106</sup>-rhodium<sup>106</sup> contribute most of this activity. The NRDL team reports cesium<sup>137</sup> as the major radionuclide in land animals and island soil and lagoon water contaminated principally by ruthenium<sup>106</sup>-rhodium<sup>106</sup> and zirconium<sup>95</sup>-niobium<sup>95</sup>.<sup>107</sup>

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.<sup>108</sup>

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.<sup>109</sup>

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.<sup>110</sup>

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.<sup>111</sup>

21-23 Oct 55

**CONTRACTOR**

**RADIATION**

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

7 Nov 55

**CONTRACTOR  
RADIATION**

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

1956

**RADIATION**

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

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.<sup>115</sup>

7-14 Feb 56

**RADIATION**

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

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.<sup>117</sup>

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.<sup>118</sup>

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.<sup>119</sup>

5 May - 22 Jul 56

**WEAPON TESTING**

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



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.<sup>121</sup>

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.<sup>122</sup>

23-24 Jul 56

**CONTRACTOR  
RADIATION**

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

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.<sup>124</sup>

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.<sup>125</sup>

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.<sup>126</sup>

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.<sup>127</sup>

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.<sup>128</sup>

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.<sup>129</sup>

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.<sup>130</sup>

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 strontium<sup>90</sup> 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.)<sup>131</sup>

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.<sup>132</sup>

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.<sup>133</sup>

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.<sup>134</sup>

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.<sup>135</sup>

29 Jun 57

**RELOCATION**

The Rongelapese are returned to their home island.<sup>136</sup>

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.<sup>137</sup>

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.<sup>138</sup>

6 May - 19 Aug 58

**WEAPON TESTING**

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

31 Oct 58

**WEAPON TESTING**

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

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 cesium<sup>137</sup>, zinc<sup>65</sup>, and strontium<sup>90</sup>, attributed to living on "the slightly contaminated island of Rongelap."<sup>141</sup>

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 strontium<sup>90</sup>, cesium<sup>137</sup>, and zirconium<sup>65</sup>" 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."<sup>142</sup>

1961

**CONTRACTOR  
MEDICAL**

Conard notes that body burdens of cesium<sup>137</sup>, zirconium<sup>65</sup>, and strontium<sup>90</sup> reach "equilibrium with environmental sources" and that "no effects from these isotopes have been detected."<sup>143</sup>

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.<sup>144</sup>

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.<sup>145</sup>

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."<sup>146</sup>

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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."<sup>147</sup>

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.<sup>148</sup>

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 zirconium<sup>95</sup>-niobium<sup>95</sup>, ruthenium<sup>103</sup> and<sup>106</sup>, and -rhodium<sup>103</sup> and<sup>106</sup> were the predominant radioisotopes in most samples; that isotopes such as tungsten<sup>181</sup> and<sup>185</sup>, zirconium<sup>65</sup>, and cesium<sup>137</sup> were relatively high in some samples; and that strontium<sup>90</sup> was found usually in very low amounts.<sup>149</sup>

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.<sup>150</sup>

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.<sup>151</sup>

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.<sup>152</sup>

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.<sup>153</sup>

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.<sup>154</sup>

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."<sup>155</sup>

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 iodine<sup>131</sup> is set at "30 rads to the thyroid."<sup>156</sup>

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.<sup>157</sup>

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.<sup>158</sup>

5004382

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."<sup>159</sup>

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."<sup>160</sup>

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  $U^{235}$  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  $Cs^{137}$  in the soil."<sup>161</sup>

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 iodine<sup>131</sup>. 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."<sup>162</sup>

The Congress of Micronesia holds its first session.<sup>163</sup>

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.<sup>164</sup>

5004383

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.<sup>165</sup>

Sep - Dec 65

**CONTRACTOR  
MEDICAL**

Conard begins "routine administration of thyroid hormone" to the exposed Rongelap people.<sup>166</sup>

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.<sup>167</sup>

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

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.<sup>169</sup>

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.<sup>170</sup>

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."<sup>171</sup>



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.<sup>172</sup>

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."<sup>173</sup>

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.<sup>174</sup>

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.<sup>175</sup>

Apr - May 67

**RADIATION  
RELOCATION**

The AEC undertakes a survey of the Bikini Atoll to determine "levels and components of external gamma radiation fields." Cesium<sup>137</sup> 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.<sup>176</sup>

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.<sup>177</sup>

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

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."<sup>179</sup>

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.<sup>180</sup>

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.<sup>181</sup>

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 cesium<sup>137</sup> 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.<sup>182</sup>

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."<sup>183</sup>

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.<sup>184</sup>

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.<sup>185</sup>

Jun 68

**AGREEMENT**

The Enewetakese request an increase in their trust fund amount.<sup>186</sup>

1 Jun 68

**RELOCATION**

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

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 cesium<sup>137</sup> and strontium<sup>90</sup> be checked after one year and as appropriate thereafter and that efforts be made to ensure an "adequately nutritious diet."<sup>188</sup>

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.<sup>189</sup>

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."<sup>190</sup>

12 Aug 68

**RELOCATION**

President Johnson publicly announces the decision to resettle the Bikinians.<sup>191</sup>

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.<sup>192</sup>

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.<sup>193</sup>

5004387

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.<sup>194</sup>

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.<sup>195</sup>

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.<sup>196</sup>

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.<sup>197</sup>

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.<sup>198</sup>

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.<sup>199</sup>

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

5004300

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.<sup>200</sup>

18 Feb 69

**RELOCATION**

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

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.<sup>202</sup>

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.<sup>203</sup>

1 May 69

**ADMINISTRATION  
MEDICAL**

The AEC names Conard to conduct the routine medical surveys of the returning Bikinians.<sup>204</sup>

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."<sup>205</sup>

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.<sup>206</sup>

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.<sup>207</sup>

13 Oct 69

**RELOCATION**

The AEC certifies that the Bikini cleanup project has been "satisfactorily completed."<sup>208</sup>

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.<sup>209</sup>

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.<sup>210</sup>

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.<sup>211</sup>

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.<sup>212</sup>

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.<sup>213</sup>

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.<sup>214</sup>

1970

**AGREEMENT  
RADIATION**

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

Urine bioassay sampling is conducted from people coming and going from Bikini Island. Pooled urine is analyzed for strontium<sup>90</sup>, cesium<sup>137</sup> and plutonium<sup>239, 240</sup>.<sup>216</sup>

1971

**CLAIMS  
PLUTONIUM  
RADIATION**

Urine bioassay sampling is conducted from people coming and going from Bikini Island. Pooled urine is analyzed for strontium<sup>90</sup>, cesium<sup>137</sup>, plutonium<sup>239</sup> and plutonium<sup>240</sup>.<sup>217</sup>

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

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.<sup>219</sup>

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.<sup>220</sup>

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.<sup>221</sup>

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.<sup>222</sup>

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.<sup>223</sup>

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.<sup>224</sup>

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.<sup>225</sup>

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.<sup>226</sup>

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.<sup>227</sup>

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.<sup>228</sup>

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, Biiijiri, 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."<sup>229</sup>

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.<sup>230</sup>

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.<sup>231</sup>

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".<sup>232</sup>

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.<sup>233</sup>

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.<sup>234</sup>

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.<sup>235</sup>

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.<sup>236</sup>

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.<sup>237</sup>

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.<sup>238</sup>

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.<sup>239</sup>

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.<sup>240</sup>

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.<sup>241</sup>

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.<sup>242</sup>

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.<sup>243</sup>

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.<sup>244</sup>

8 Nov 72

**RADIATION**

Survey activities resume at Enewetak Atoll.<sup>245</sup>

14 Nov 72

**MEDICAL**

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

15 Nov 72

**MEDICAL**

A 19-year-old male, 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.<sup>247</sup>

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.<sup>248</sup>

30 Nov 72

**ADMINISTRATION**

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

Late 1972

**MEDICAL  
RADIATION**

According to urine bioassays from people coming to and going from Bikini Island, cesium<sup>137</sup> concentration shows an increase by a factor of four over 1970 results and strontium<sup>90</sup> levels increase by a factor of two.

The T.T. begins a program of sending monthly shipments of food to Bikini.<sup>250</sup>

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.<sup>251</sup>

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.<sup>252</sup>

Urine bioassays from people coming and going from Bikini Island show cesium<sup>137</sup> in urine higher than in 1970 by a factor of about ten and an increase in strontium<sup>90</sup> 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.<sup>253</sup>

14 Feb 73

**RADIATION**

Field operations of the Enewetak radiological survey are completed.<sup>254</sup>

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.<sup>255</sup>

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.<sup>256</sup>

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.<sup>257</sup>

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.<sup>258</sup>

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.<sup>259</sup>

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.<sup>260</sup>

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.<sup>261</sup>

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.<sup>262</sup>

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.<sup>263</sup>

1 Jan 74

**ADMINISTRATION**

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

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.<sup>265</sup>

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".<sup>266</sup>

28 Feb 74

**AGREEMENT  
CLAIMS**

The Special Joint Committee Concerning Rongelap and Utirik Atolls reports to the Fifth Congress of Micronesia on compensation for the people of Rongelap and Utirik. 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 Utirik 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.<sup>267</sup>

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.<sup>268</sup>

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.<sup>269</sup>

The first in vivo counting of cesium<sup>137</sup> is taken for Bikini residents. Cesium<sup>137</sup> values are about the same as 1973. Strontium<sup>90</sup> levels are down to about 1970 levels. Plutonium<sup>239</sup> and plutonium<sup>240</sup> levels are higher by a factor of five.<sup>270</sup>

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.<sup>271</sup>

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."<sup>272</sup>

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.<sup>273</sup>

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 plutonium<sup>239</sup> 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.<sup>274</sup>

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.<sup>275</sup>

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.<sup>276</sup>

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.<sup>277</sup>

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.<sup>278</sup>

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.<sup>279</sup>

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."<sup>280</sup>

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.<sup>281</sup>

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.<sup>282</sup>

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.<sup>283</sup>

5004402

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.<sup>284</sup>

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.<sup>285</sup>

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.<sup>286</sup>

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".<sup>287</sup>

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.<sup>288</sup>

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.<sup>289</sup>

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.<sup>290</sup>

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.<sup>291</sup>

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.<sup>292</sup>

Urine bioassays from Bikini show levels of plutonium<sup>239</sup> and plutonium<sup>240</sup> 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).<sup>293</sup>

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.<sup>294</sup>

May 75

**RADIATION**

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

5004404

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.<sup>296</sup>

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.<sup>297</sup>

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.<sup>298</sup>

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.<sup>299</sup>

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.<sup>300</sup>

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.<sup>301</sup>

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.<sup>302</sup>

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.<sup>303</sup>

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.<sup>304</sup>

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

5004406

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.<sup>305</sup>

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.<sup>306</sup>

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.<sup>307</sup>

Urine bioassays from Bikini show plutonium<sup>239</sup> and plutonium<sup>240</sup> levels higher than 1971 by a factor of two. Cesium<sup>137</sup> levels from urine are higher than 1970 values by a factor of about 30. Strontium<sup>90</sup> 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.<sup>308</sup>

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."<sup>309</sup>

Apr 76

**CONTRACTOR  
RADIATION**

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

Sep 76

**CONTRACTOR  
RADIATION**

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

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.<sup>312</sup>

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."<sup>313</sup>

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.<sup>314</sup>

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.<sup>315</sup>

5004408



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, strontium<sup>90</sup> and cesium<sup>137</sup> are dominant in the terrestrial environment; and americium<sup>241</sup>, plutonium<sup>239</sup>, and plutonium<sup>240</sup> are also in the soil from Bikini and Rongelap.<sup>316</sup>

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.<sup>317</sup>

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.<sup>318</sup>

15 Mar 77

**RELOCATION**

Fifty-six Enewetakese return to Japtan.<sup>319</sup>

Apr 77

**RADIATION**

In vivo counting for Bikini Island residents indicates a ten-fold increase in body burdens of cesium<sup>137</sup> 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.<sup>320</sup>

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.<sup>321</sup>

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.<sup>322</sup>

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. <sup>323</sup>

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 cesium<sup>137</sup> 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. <sup>324</sup>

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. <sup>325</sup>

27-29 Jun 77

**RADIATION**

Marshall Islands workshop participants ask for reevaluations of Enewetak cleanup plans. <sup>326</sup>

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. <sup>327</sup>

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.<sup>328</sup>

Oct 77

**CONTRACTOR  
RADIATION**

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

Urine samples are collected from Bikini residents under controlled conditions to avoid contamination.<sup>330</sup>

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.<sup>331</sup>

Nov 77

**RADIATION**

The T.T. government institutes a complete dietary program for all residents of Bikini.<sup>332</sup>

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.<sup>333</sup>

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.<sup>334</sup>

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.<sup>335</sup>

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.<sup>336</sup>

6 Jan 78

**AGREEMENT**

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

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.<sup>338</sup>

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.<sup>339</sup>

Apr 78

**RADIATION**

Radiological surveys of Bikini residents show a 75 percent increase in cesium<sup>137</sup> burdens compared to 1977. Twelve of about 140 people exceed current standards for body burdens.<sup>340</sup>

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.<sup>341</sup>

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.<sup>342</sup>

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.<sup>343</sup>

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.<sup>344</sup>

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.<sup>345</sup>

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.<sup>346</sup>

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.<sup>347</sup>

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.<sup>348</sup>

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.<sup>349</sup>

28 Aug 78

**RELOCATION**

Relocation of Bikini residents to Kili Island begins.<sup>350</sup>

Sep 78

**RADIATION**

The technical phase of the Thirteen Atoll Survey begins.<sup>351</sup>

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.<sup>352</sup>

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.<sup>353</sup>

Jan 79

**RADIATION**

Measured body burdens of cesium<sup>137</sup> 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.<sup>354</sup>

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.<sup>355</sup>

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.<sup>356</sup>

1 Mar 79

**ADMINISTRATION**

In a referendum, the people of the Republic of the Marshall Islands (RMI) approve a constitution.<sup>357</sup>

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.<sup>358</sup>

Mar-Apr 79

**CONTRACTOR  
RADIATION**

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

5004415

1 May 79

**ADMINISTRATION**

The RMI inaugurates a parliamentary constitutional government.<sup>360</sup>

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.<sup>361</sup>

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.<sup>362</sup>

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.<sup>363</sup>

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.<sup>364</sup>

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.<sup>365</sup>



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.<sup>366</sup>

16 Sep 79

**RADIATION**

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

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.<sup>368</sup>

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, MLC, 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.<sup>369</sup>

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.<sup>370</sup>

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.<sup>371</sup>

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.<sup>372</sup>

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.<sup>373</sup>

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.<sup>374</sup>

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.<sup>375</sup>

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.<sup>376</sup>

Mar 80

**RADIATION**

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

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.<sup>378</sup>

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.<sup>379</sup>

May 80

**RELOCATION**

The Enewetak people return to Enewetak Atoll.<sup>380</sup>

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.<sup>381</sup>

The DOE presents and explains "The Meaning of Radiation at Bikini Atoll" to the Bikini people living on Kili.<sup>362</sup>

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).<sup>363</sup>

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.<sup>364</sup>

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.<sup>365</sup>

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.<sup>366</sup>

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.<sup>367</sup>

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.<sup>368</sup>

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.<sup>389</sup>

Mar 81

**POLICY  
RELOCATION**

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

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.<sup>391</sup>

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).<sup>392</sup>

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."<sup>393</sup>

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."<sup>394</sup>

1982

**ADMINISTRATION  
CLAIMS  
CONTRACTOR  
MEDICAL**

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.<sup>395</sup>

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

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.<sup>397</sup>

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.<sup>398</sup>

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.<sup>399</sup>

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."<sup>400</sup>

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.<sup>401</sup>

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).<sup>402</sup>

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.<sup>403</sup>

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.<sup>404</sup>

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.<sup>405</sup>

30 May 82

**AGREEMENT**

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

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.<sup>407</sup>

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.<sup>408</sup>

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.<sup>409</sup>

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.<sup>410</sup>

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."<sup>411</sup>

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.<sup>412</sup>

Nov 82

**MEDICAL  
RADIATION**

The DOE issues Melelen Radiation Ilo Ailin ko Ituiōn 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.<sup>413</sup>

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.<sup>414</sup>

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.<sup>415</sup>

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

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.<sup>417</sup>

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.<sup>418</sup>

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.<sup>419</sup>

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."<sup>420</sup>

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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.<sup>421</sup>

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."<sup>422</sup>

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."<sup>423</sup>

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.<sup>424</sup>

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.<sup>425</sup>

7 Sep 83

**AGREEMENT**

The electorate of the Marshall Islands votes to approve the COFA.<sup>426</sup>

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.<sup>427</sup>

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.<sup>428</sup>

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.<sup>429</sup>

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.<sup>430</sup>

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.<sup>431</sup>

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.<sup>432</sup>

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.<sup>433</sup>

30 Mar 84

**AGREEMENT**

The President transmits the COFA to Congress.<sup>434</sup>

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.<sup>435</sup>

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.<sup>436</sup>

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.<sup>437</sup>

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.I. 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.<sup>438</sup>

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.<sup>439</sup>

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..."<sup>440</sup>

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.<sup>441</sup>

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.<sup>442</sup>

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.<sup>443</sup>

1 Aug 84

**MEDICAL**

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

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.<sup>445</sup>

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.<sup>446</sup>

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

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did not work on Bikini Island; and until the Pu<sup>239</sup> problem is resolved no recommendation or interpretation of radiological conditions should be made.<sup>447</sup>

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.<sup>448</sup>

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.<sup>449</sup>

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 cesium<sup>137</sup> while the residual charcoal contains most of the element.<sup>450</sup>

17 Oct 84

**ADMINISTRATIVE  
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.<sup>451</sup>

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 cesium<sup>137</sup> 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.<sup>452</sup>

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.<sup>453</sup>

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.<sup>454</sup>

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.<sup>455</sup>

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.<sup>456</sup>

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.<sup>457</sup>

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

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.<sup>459</sup>



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.<sup>460</sup>

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.<sup>461</sup>

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.<sup>462</sup>

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.<sup>463</sup>

Mar 85

**ADMINISTRATION  
CONTRACTOR  
MEDICAL  
RADIATION**

The BNL issues Thyroid Absorbed Dose for People at Rongelap, Utirik, and Sifo in March 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.<sup>464</sup>

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.<sup>465</sup>

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.<sup>466</sup>

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.<sup>467</sup>

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."<sup>468</sup>

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.<sup>469</sup>

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.<sup>470</sup>

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.<sup>471</sup>

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.<sup>472</sup>

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.<sup>473</sup>

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."<sup>474</sup>

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.<sup>475</sup>

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.<sup>476</sup>

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.<sup>477</sup>

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.<sup>478</sup>

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.<sup>479</sup>

13 Dec 85

**ADMINISTRATION  
AGREEMENT  
LEGAL RESPONSIBILITY**

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

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.<sup>481</sup>

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.<sup>442</sup>

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*.<sup>443</sup>

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.<sup>444</sup>

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.<sup>445</sup>

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.<sup>446</sup>

Mar - Apr 86

**ADMINISTRATION  
CONTRACTOR  
MEDICAL**

The BNL medical team conducts medical examinations for 353 adults in the Marshall Islands.<sup>487</sup>

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.<sup>488</sup>

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.<sup>489</sup>

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.<sup>490</sup>

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.<sup>491</sup>

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.<sup>492</sup>

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.<sup>493</sup>

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

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.<sup>495</sup>

28 Aug - 13 Sep 86

**CONTRACTOR  
MEDICAL**

The DOE reaches an understanding with the RMI that the target for a visit of the BNL medical team on a mission to Kwajalein, Uterik, Mejato, Ebeye, and Majuro conducts follow-up examinations of the Marshallese.<sup>496</sup>

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.<sup>497</sup>

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.<sup>498</sup>

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.<sup>499</sup>

10 Oct 86

**AGREEMENT**

The agreement for implementation of the COFA is signed by the U.S. and the RMI<sup>500</sup>

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.<sup>501</sup>

21 Oct 86

**AGREEMENT**

The COFA becomes effective.<sup>502</sup>

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.<sup>503</sup>

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."<sup>504</sup>



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.<sup>505</sup>

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.<sup>506</sup>

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.<sup>507</sup>

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.<sup>508</sup>

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.<sup>509</sup>

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.<sup>510</sup>

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.<sup>511</sup>

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.<sup>512</sup>

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."<sup>513</sup>

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.<sup>514</sup>

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.<sup>515</sup>

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.<sup>516</sup>

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.<sup>317</sup>

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.<sup>318</sup>

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.<sup>319</sup>

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 assesses the adequacy of the data on which the report was based.<sup>320</sup>

1 Aug 87

**RADIATION** BARC concludes that the RMI's 1982 report on the risks of resettling Rongelap is based on outdated and non-representative data. **CONTRACTOR** H&N reports that the Runit concrete dome's structural integrity is not impaired and there are no radiation leaks.<sup>321</sup>

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 radiiodines 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."<sup>322</sup>

25 Aug 87

**RADIATION  
RELOCATION**

The RMI announces the selection of Dr. Henry I. Kohn to conduct the reassessment of the 1982 report.<sup>323</sup>

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.<sup>324</sup>

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.<sup>325</sup>

Sep 87

**MEDICAL  
CONTRACTOR**

BNL conducts a follow-up medical trip to conduct examinations for the exposed people of Rongelap and Utirik.<sup>326</sup>

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.<sup>327</sup>

1 Oct 87

**AGREEMENT** Under and ideal and Del. Weingo submit House Congressional  
**MEDICAL** 105 that expresses the sense of Congress regarding the habitability of  
**RADIATION** the atoll. The resolution concludes that the DOE and the DOI should make  
funds available to the RMI to contract for the rehabilitation of the atoll.  
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.<sup>328</sup>

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.<sup>329</sup>

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.<sup>530</sup>

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.<sup>531</sup>

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.<sup>532</sup>

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.<sup>533</sup>

10 Nov 87

**CLAIMS**

The U.S. Claims Court dismisses three claims cases, *Juda vs. U.S.*, *Peter vs. U.S.*, and *Nirol 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.<sup>534</sup>

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.<sup>535</sup>

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.<sup>536</sup>

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.<sup>337</sup>

7 Jan 88

**ADMINISTRATION  
CONTRACTOR  
RADIATION  
RELOCATION**

The LLNL recommends potassium treatment of the soil for the uptake of cesium<sup>137</sup> in the northern Marshall Islands.<sup>338</sup>

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.<sup>339</sup>

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.<sup>340</sup>

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.<sup>341</sup>

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."<sup>342</sup>

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.<sup>543</sup>

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.<sup>544</sup>

11 Mar 88

**RADIATION  
MEDICAL  
CONTRACTOR**

The BNL's approach to determining the body count of Pu<sup>239</sup> 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 Pu<sup>239</sup>." Lessard urges that urine sampling begin immediately of former residents of Bikini and Rongelap before they return to their former islands.<sup>545</sup>

Apr 88

**CONTRACTOR  
RELOCATION**

1 May 88

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

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.<sup>547</sup>

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.<sup>548</sup>

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.<sup>549</sup>

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.<sup>550</sup>

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.<sup>551</sup>

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.<sup>552</sup>

1-26 Sep 88

**CONTRACTOR  
MEDICAL**

BNL conducts a sampling bioassay mission to Rongelap and Utirik.<sup>553</sup>

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.<sup>554</sup>

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.<sup>555</sup>

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.<sup>556</sup>

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.<sup>557</sup>

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.<sup>558</sup>

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.<sup>559</sup>

26 Oct 88

**RADIATION**

In response to a RMI request to provide recommendations as to how to decrease the uptake of cesium<sup>137</sup> in food crops, the DOE suggests applying 1200 pounds per acre of potassium chloride. This process is used on Eneu through the DOI.<sup>560</sup>

2 Nov 88

**RADIATION**

In a draft proposal the DOE outlines a radiological education program for the Marshallese.<sup>561</sup>

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.<sup>362</sup>

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.<sup>363</sup>

23 Jan 89

**MEDICAL  
CONTRACTOR**

The BNL issues Medical Status of Marshallese Accidentally 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 Utirikese and unexposed Rongelapese.<sup>364</sup>

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.<sup>365</sup>

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..."<sup>366</sup>

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.<sup>367</sup>

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.<sup>568</sup>

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.<sup>569</sup>

8-9 Mar 89

**ADMINISTRATION**

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

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.<sup>571</sup>

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.<sup>572</sup>

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.<sup>573</sup> 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.<sup>574</sup>

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.<sup>575</sup>

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.<sup>576</sup>

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.<sup>577</sup>

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.<sup>578</sup>

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.<sup>579</sup>

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.<sup>580</sup>

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.<sup>581</sup>

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.<sup>582</sup>

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.<sup>583</sup>

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.<sup>584</sup>

7 Aug 89

**RADIATION**

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

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.<sup>586</sup>

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.<sup>587</sup>

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.<sup>588</sup>

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.<sup>589</sup>

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.<sup>590</sup>

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.<sup>591</sup>

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.<sup>592</sup>

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..."<sup>593</sup>

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

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.<sup>595</sup>

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.<sup>596</sup>

7 Dec 89

**ADMINISTRATION  
PLUTONIUM  
RADIATION**

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

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.<sup>598</sup>

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.<sup>599</sup>

28 Dec 89

**RADIATION  
RELOCATION**

The Rongelap Atoll local government council passes a resolution that the RMI, with the exception of the RMI Marshall Islands medical program, must not be used until the DOE provides the council with a full and complete report. RMI Secretary Anjain testifies before the DOE Secretariat 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.<sup>600</sup>



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.<sup>601</sup>

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.<sup>602</sup>

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.<sup>603</sup>

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.<sup>604</sup>

13 Jan 90

**MEDICAL TREATMENT  
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.<sup>605</sup>

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.<sup>606</sup>

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.<sup>607</sup>

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.<sup>608</sup>

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.<sup>609</sup>

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.<sup>610</sup>

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 Mejatto in March-April 1990.<sup>611</sup>

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.<sup>612</sup>

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.<sup>613</sup>

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.<sup>614</sup>

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.<sup>615</sup> 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.<sup>616</sup>

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.<sup>617</sup>

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.<sup>618</sup>

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".<sup>619</sup>

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.<sup>620</sup>

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.<sup>621</sup>

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.<sup>622</sup>

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.<sup>623</sup>

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."<sup>624</sup>

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.<sup>625</sup>

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.<sup>626</sup>

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.<sup>627</sup>

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.<sup>628</sup>

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.<sup>629</sup>

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.<sup>630</sup>

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.<sup>631</sup>

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.<sup>239 632</sup>

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.<sup>633</sup>

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.<sup>634</sup>

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.<sup>635</sup>

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.<sup>636</sup>

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 cesium<sup>137</sup> 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.<sup>637</sup>

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.<sup>638</sup>

DOE

Office of Environmental and Public Health

DOE

DOE Council of Biology and Environmental Research

DOE

DOE Division of Nuclear and Medicine

## 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.

DOE Policy Studies on Environmental Risks

**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.

OPERA Secretarial Panel for the Evaluation of Epidemiologic Research Activities

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.

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**APPENDIX B - ABBREVIATIONS**

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

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	Commander, Scripps Institution of Oceanography, San Diego, California (AEC 597/32, 15 Dec 63, Sec Handl. Box 4028, NRR&A7 Castle, San Diego, CA)
SPEERA	National Secretarial Panel for the Evaluation of Epidemiologic Research Activities
SSC	(DOE) 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  
242 West Park Avenue  
Long Beach, NY 11563  
Phone (516) 432-3563  
Executive Director: Fr. Stanley W. Hesse

Micromedcom (Micronesia Medical Communications)  
2645 Huakaia Street  
Honolulu, HI 96822  
Phone (808) 965-4323  
Director: Dr. Greg Dever

Pacific Islands Development Program East-West Center  
1777 East West Road  
Honolulu, HI 96845  
Phone (808) 944-7704  
Research Coordinator: Dr. Michael P. Hamnett

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) 525-8325  
Executive Director: Mr. Jerry B. Norris

Pacific Basin Environmental Consultants  
P.O. Box 20820 GMF  
Guam, MI 96827  
Rdch (671) 472-8016  
President: Ronald D. Strong

Pacific Business Center Program  
University of Hawaii at Manoa  
College of Business Administration  
2404 Maki Way,  
Honolulu, HI 96822  
Phone (808) 945-8286  
Director: Ms. Angela L. Williams

Pacific Basin Economic Council  
c/o SRH International  
Menlo Park, CA 94025  
Phone (415) 859-4456  
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) 865-4630  
Executive Director: Mr. Solomon S. Aelius

The Pacific Foundation  
(For The Advancement of Science and Medicine)  
2135 Renroc  
Cleveland, OH 44118  
Phone (216) 932-7733  
Director: Dr. Peter S. Tippet

The Micronesia Institute  
2152 Wyoming Avenue, N.W.  
Washington, D.C. 20006  
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) 487-7691  
President: Mr. Lawrence C. Jans

**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	Nea 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 Mersels, R.D., M.P.H.
Student Intern	Maryann P. Zim



## 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) 225-3061

**Senate Committee on Energy and Natural Resources**  
United States Senate  
Washington, D.C. 20510  
Chairman: Honorable James A. McClure  
Staff: Mr. James P. Bairne,  
Senior Counsel  
Allen Slayman, 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 Calkins  
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. Eliseo Patricia  
Chief, Division of Health Services  
Department of Social and Health Services  
National Government of the Federated States of Micronesia  
Kolonia, Pohnpei 96941

**Yap State, FSM**  
Ms. Mary Fighi, Director  
State Health Services  
P.O. Box 146  
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.)

U.S. House of Representatives, Room 3181, Thomas Jefferson Building, Washington, D.C. 20540  
U.S. Senate, Room 355, East Senate Office Building, Washington, D.C. 20540  
U.S. Department of State, Office of Micronesia, Room 54, AEC Building, Washington, D.C. 20520  
U.S. Department of Health, Education and Welfare, Office of Micronesia, Room 335, Capitol Building, Washington, D.C. 20540

## Micronesia Government Leaders

**Trust Territory Government**  
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## 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.)
13. Draft No. 1 memorandum for the record of a conference in the President's office by J. McCormack, 25 Nov 47, DMA Files, Box 3866, Planning & Policy (1), RG 326, DOE Archives. [F10]
14. USAEC Press Release No. 70, 1 Dec 47, Secretariat, Box 4942, 471.6 Sandstone, RG 326, DOE Archives. [F7]
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]
25. Announced U.S. Nuclear Tests, DOE/NV 209, (Rev. 10), April 1990, p. 2.
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]~~ Announcement of Canada's Policy in the Pacific Ocean, p. 11. [A51]
30. U.S., Statutes at Large, Vol. 65: 248-265. [A5]
31. ~~AEC 334/10 [A7]~~ Radioactive Contamination of the Environment in the Pacific Ocean from 1945 to 1952, p. 3. [A51]
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. 1, RG 326, DOE Archives. [A8]
35. "Marshall Islands A Chronology," p. 11. [A27]
36. Announced U.S. Nuclear Tests, p. 3.
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 492B, MR&A7 Castle, Vol. I, 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. U.S. Long, House 85th Cong., 1st Sess., "Radioactive Fallout and Its Effects" 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.

52. AEC Division of Biology & Medicine, "Conference on Long Term Surveys and Studies of Marshall Islands," pp. 14, 54, Division of Biology and Medicine (DBM), Box 3365, Folder 18, RG 326, DOE Archives. [A30]
53. "Medical Aspects of Fall-out from Bravo," undated, unsigned report, attached to memo on Bravo Shot, Operation Castle, 12 Apr 54, Roger Ray collection. [A29]
54. U.S. Cong., House, 85th Cong., 1st sess., Special Subcommittee on Radiation of the JCAE, "Hearings on Radioactive Fallout and Its Effects on Man," Part 1, 27, 28, 29 May and 3 Jun 57, p. 912. [A48]
55. U.S. Cong., House, 85th Cong., 1st sess., "Radioactive Fallout and Its Effects on Man," p. 177. [A48]
56. Wataru W. Sutow and Robert A. Conard, "The Effects of Fallout Radiation on Marshallese Children," BNL 13584, p.2, Doc. 19247, CIC. [I5]
57. Defense Nuclear Agency (DNA), Castle Series 1954, United States Atmospheric Nuclear Weapons Tests Nuclear Test Personnel Review, 1 Apr 82, DNA 6035F. NTIS, pp. 223, 226-229. [F18]
58. AEC 597/43, 18 Mar 54, Secretariat, Box 4929, MR&A7 Castle, Vol. 3, RG 326, DOE Archives [A11]; "Answers to State Department 'List of Possible Questions.'" [A18]
59. Defense Nuclear Agency, Castle Series 1954, p. 228. [F18]
60. AEC 597/43 [A11]; "Answers to State Department 'List of Possible Questions.'" [A18]
61. AEC 597/43. [A11]
62. CTG Seven to USAEC via Los Alamos, 5 Mar 54, Records Center JDO C2D44, Bravo Fallout, RG 326, LANL [F8]; Clarkson to Fields and Bugher, 10 Mar 54, Records Center B-9 D-158, 635, Castle 12-81-53, 3-15-54, RG 326, LANL [F36]
63. AEC 597/43. [A11]
64. AEC 597/43. [A11]
65. AEC 597/43. [A11]
66. J. C. Bugher to Alfred J. Breslin, 6 Mar 54, Tommy McCraw Papers (hereafter McCraw), Box 1, Rongelap-Utirik, twxs 1954 re Fallout following Bravo, RG 326, DOE Archives. [A58]
67. Memorandum by Dr. Herbert Scoville, 12 Mar 54, Records Center, F-43 B-195, Castle Fallout Observations, RG 326, LANL [A57]
68. Memorandum by Scoville, 12 Mar 54. [A57]
69. Memorandum by Scoville, 12 Mar 54. [A57]

70. Thomas L Shipman to John C. Bugher, 10 Mar 54, Records Center CRMO B-9 D-158, 635 Castle January 1, 1954 to March 15, 1954, RG 326, LANL [F14]
71. Cmdr. James E. Reeves to Frank D. Peel, 11 Mar 54, Records Center C-2 D-44, Castle October 1953, RG 326, LANL [F15]
72. CJTF-7, Enewetak, to chairman, AEC, et al, 12 Mar 54, McCraw, Box 7, Bravo Twxs, RG 326, DOE Archives. [A62]
73. FEF-51, "Congressmen Report on Radiation Exposure," JCAE General Correspondence, Box 712, "Weapons Tests (Eniwetok) 1954 1955," RG 128, NARA. [A12]
74. AEC DBM, "Conference on Long Term Surveys and Studies of Marshall Islands," pp. 14, 54. [A30]
75. Gen. Clarkson to Fields, 15 Mar 54, Records Center JDO C-2, Bravo Fallout, RG 326, LANL [F5]
76. U.S. Cong., House, 85th Cong., 1st sess., "Radioactive Fallout and Its Effects on Man," pp. 935, 942. [A48]
77. Naval Station, Kwajalein, to AEC, Washington, 15 March 1954, JCAE, General Subject Files, Box 80, Weapons Tests Pacific Proving Ground (Castle) 1954, p. 51, RG 128, NARA. [X4]
78. Memorandum by Ed Heller, 23 Mar 54, JCAE General Correspondence, Box 712, "Weapons Tests (Eniwetok) 1954 1955," RG 128, NARA. [A13]
79. Applied Fisheries Laboratory, University of Washington, "A Radiological Study of Rongelap Atoll, Marshall Islands, during 1954-1955," UWFL-42, Abstract, McCraw, Box 9, U of W Laboratory of Radiation Biology Seattle, Washington 98105, UWFL-42, RG 326, DOE Archives. [A37]
80. A. C. Graves to N. E. Bradbury, 1 Apr 54, Science 3131, Records Center B-9 D-158, 635 CASTLE 3/16/54 - 4/15/54, RG 326, LANL [F16]; N. E. Bradbury to A. C. Graves, 1 Apr 54, AEC GR82, Records Center B-9 D-158, 635 CASTLE 3/16/54 - 4/15/54, RG 326, LANL [F17]
81. Thomas L Shipman, Health Division, LASL, to Zen, CTG 7.1, Enewetak, 13 Apr 54, McCraw, Box 7, Bravo Twxs, RG 326, DOE Archives. [A63]
82. 982nd AEC meeting 7 May 54 minutes, Secretariat, Box 4929, MR&A7 Castle, Vol. 3 [A14]; 984th AEC meeting 12 May 54 minutes, Secretariat, Box 4928, Medicine, Health and Safety (MH&S) 3 Radiation, Vol. I, RG 326, DOE Archives [A15]; K. D. Nichols, General Manager, AEC, to Rep. W. Sterling Cole, Chairman, JCAE, 14 Sep 54. [A18]
83. CJTF-7, Enewetak, to chairman, AEC, 22 Apr 54, McCraw, Box 7, Bravo Twxs, RG 326, DOE Archives. [A61]
84. AEC125/8, 18 May 54, Secretariat, Box 1264, MR&A 7-1 Proving Grounds, Vol. II, RG 326, DOE Archives. [A52]

85. "Marshall Islands A Chronology," p. 12. [A27]
86. 984th AEC meeting 12 May 54 minutes. [A15]
87. Gordon Dunning to John C. Bugher, 21 May 54, McCraw, Box 1, Rongelap-Utirik, twxs, 1954 re Fallout following Bravo, RG 326, DOE Archives. [A59]
88. Gordon Dunning to John C. Bugher, 24 May 54, McCraw, Box 1, Rongelap-Utirik, twxs 1954 re Fallout following Bravo, RG 326, DOE Archives. [A60]
89. AEC 620/11, 8 Jun 54, enclosing Lewis L. Strauss to Charles E. Wilson, 28 May 54, Secretariat, Box 1253, "Legal 6 Claims and Litigations," RG 326, DOE Archives. [A16]
90. Philip Helfrich and Roger Ray, "Research at Enewetak Atoll: A Historical Perspective" in Dennis M. Devaney et al, ed., The Natural History of Enewetak Atoll, DOE/EV/00703-T1-Vol. 1, p. 6. [G78]
91. Maj. Gen. E. McGinley to the director, DBM, 21 Jun 54, McCraw, Box 1, Rongelap-Utirik, twxs 1954 re Fallout following Bravo, RG 326, DOE Archives. [F25]
92. AEC 620/12, 4 Aug 54, enclosing Wilber M. Brucker to Admiral Strauss, 9 Jul 54, Secretariat, Box 1253, "Legal 6 Claims and Litigations," RG 326, DOE Archives. [A17]
93. AEC DBM, "Conference on Long Term Surveys and Studies of Marshall Islands," pp. 143, 144, 147, 242. [A30]
94. "A Radiological Study of Rongelap Atoll, Marshall Islands, during 1954-1955," p. 3. [A37]
95. 1017th AEC Meeting, 23 Jul 54, minute, Secretariat, Box 1264, MR&A 7-1 Proving Grounds, Vol. II, RG 326, DOE Archives. [A20]
96. V. Bond et al, Medical Examination of Rongelap People Six Months after Exposure to Fallout, April 1955, WF-937, McCraw, Box 9, RG 326, DOE Archives. [A31]
97. "Answers to State Department 'List of Possible Questions.'" [A18]
98. "Answers to State Department 'List of Possible Questions.'" [A18].
99. "Radiological Problems in the Marshall Islands," attached to K. D. Nichols to W. Sterling Cole, 14 Sep 54. [A18]
100. Chairman, AEC, to Herbert B. Loper, chairman, Military Liaison Committee, 19 Nov 54, Secretariat, Box 4928, MH&S 3 Radiation, Vol. I. [A19]
101. AEC 125/15, 8 Dec 54, enclosing Chairman Lewis L. Strauss to John Foster Dulles, 2 Dec 54, Secretariat, Box 1264, MR&A 7-1 Proving Grounds, Vol. II, RG 326, DOE Archives. [A21]
102. "A Radiological Study of Rongelap Atoll," pp. 4-5. [A37]

103. "A Radiological Study of Rongelap Atoll," p. 5 [A37]; AEC 125/23, 17 Jun 55, Secretariat, Box 1264, MR&A 7-1 Proving Grounds Vol. II, RG 326, DOE Archives. [A34]
104. U.S. Cong., House, 85th Cong., 1st sess., "The Nature of Radioactive Fallout and Its Effects on Man," p. 212, 213, 248, 251. [A48]. The statement by Gordon M. Dunning does not say who is responsible for the health and safety of the general population for consequences of Castle tests conducted at the Pacific Proving Ground.
105. "Radioactive Contamination of Certain Areas in the Pacific Ocean from Nuclear Tests," August 1957, McCraw, Box 9, RG 326, DOE Archives. [A51]
106. AEC 125/23, 17 Jun 55. [A34]
107. "Residual Contamination of Plants, Animals, Soil, and Water of the Marshall Islands One Year following Operation Castle Fall-out," USNRDL-454, p. iii, McCraw, Box 9, Radiological Survey, RG 326, DOE Archives. [A36]
108. AEC 125/21, 16 May 55, Secretariat, Box 1264, MR&A 7-1 Proving Grounds, Vol. II, RG 326, DOE Archives [A33]; AEC 125/18, 15 Apr 55, Secretariat, Box 1264, MR&A 7-1 Proving Grounds, Vol. II, RG 326, DOE Archives. [A32]
109. AEC 125/24, 27 Jun 55, Secretariat, Box 1264, MR&A 7-1 Proving Grounds Vol. II, RG 326, DOE Archives. [A35]
110. AEC 125/23. [A34]
111. AEC 125/26, 17 Oct 55, enclosing K. E. Fields to Delmas H. Nucker, deputy high commissioner, Trust Territory of the Pacific Islands, 5 Oct 55, Secretariat, Box 1264, MR&A 7-1 Proving Grounds Vol. III, RG 326, DOE Archives. [A38]
112. "Radioactive Contamination of Certain Areas in the Pacific Ocean from Nuclear Tests," p. v. [A51]
113. "Radioactive Contamination of Certain Areas in the Pacific Ocean from Nuclear Tests," p. v. [A51]
114. U.S. Cong., House, 85th Cong., 1st sess., "Radioactive Fallout and Its Effects on Man," testimony of Cronkite, p. 949. [A48]
115. Arthur D. Welander, "Radiobiological Studies of the Fish Collected at Rongelap & Ailinginae Atolls, July 1957," UWFL-55, 5 Mar 58, McCraw, Box 9, RG 326, DOE Archives. [A50]
116. "Radioactive Contamination of Certain Areas in the Pacific Ocean from Nuclear Tests," p. v. [A51]
117. AEC 125/28, 3 Apr 56, Secretariat, Box 1264, MR&A 7-1 Proving Grounds Vol. III, RG 326, DOE Archives. [A55]
118. John A. Hall to Morse Salisbury, 6 Apr 56, Office of the General Manager (OGM), Box 5632, Weapons - AEC - DOD Tests of Weapons I, RG 326, DOE Archives. [F33]



119. AEC informal meetings, 24 Apr 56, minutes, Secretariat, Box 1258, MH&S-3 Radiation Vol. 2, RG 326, DOE Archives. [A54]
120. Announced U.S. Nuclear Tests, p. 6.
121. Survey of Radioactivity in the Sea near Bikini and Eniwetok Atolls 11-21 Jun 56, UWFL-46, pp. iv, 1, McCraw, Box 9, RG 326, DOE Archives. [A40]
122. Brig. Gen. Alfred D. Starbird to the AEC commissioners, 2 Aug 56, Secretariat, Box 1263, MR&A-7 Redwing Vol. 3, RG 326, DOE Archives. [F20]
123. "Radioactive Contamination of Certain Areas in the Pacific Ocean from Nuclear Tests," p. v. [A51]
124. AEC 125/30, 6 Feb 57, Appendix "A", p. 7, Secretariat, Box 1264, MR&A 7-1 Proving Grounds Vol. III, RG 326, DOE Archives [A43]; K. E. Fields to Hon. Carl T. Durham, chairman, JCAE, 1 Apr 57, General Correspondence, Box 712, Weapons Test-Eniwetok, RG 128, NARA. [A47]
125. "Survey of Radioactivity in the Sea and in Pelagic Marine Life West of the Marshall Islands, September 1-20 1956," UWFL-47, 15 Mar 57, McCraw, Box 9, RG 326, DOE Archives. [A41]
126. AEC 125/30. [A43]
127. "Agreement in Principle Regarding the Use of Eniwetok Atoll," 22 Nov 56, attached to "Summary of Relevant Background for Land Use Claims," L. Joe Deal Personal Files (hereafter Deal P). [A39]
128. "Agreement in Principle Regarding the Use of Bikini Atoll," Deal P. [A39]
129. 1249th AEC meeting, 27 Nov 56, minute, Secretariat, Box 1258, MH&S-3 Radiation Vol. 3, RG 326, DOE Archives. [A42]
130. John R. Totter to Chairman Seaborg, et al., 24 Apr 70, Secretariat, Box 1262, U.S. Cong., House, 85th Cong., 1st Sess., "Radioactive Fallout and Its Effects on Man," p. 950. [A48]
131. AEC 125/30. [A43]; Richard G. Hewlett and Jack M. Holl, Atoms for Peace and War 1953-1961 (Berkeley: University of California Press, 1989), p. 329.
132. AEC 125/30. [A43]
133. 1267th AEC Meeting, 21 Feb 57, minute, Secretariat, Box 1264, MR&A 7-1 Proving Grounds Vol. III, RG 326, DOE Archives. [A44]
134. "Radsafe Emergency Instructions for Populated Islands" in U.S. Cong., House, 85th Cong., 1st Sess., "The Nature of Radioactive Fallout and Its Effects on Man," p. 475. [A48]
135. C. L. Dunham to K. E. Fields, 5 Aug 57, OGM, Box 5673, DBM, RG 326, DOE Archives. [A45]

136. R. W. Cook to Hon. Carl T. Durham, chairman, JCAE, 18 Jul 57, JCAE General Correspondence, Box 712, Weapons Test -Eniwetok, RG 128, NARA. [A49]
137. AEC 952/45, 9 Apr 58, enclosing W. F. Libby, acting chairman of the AEC, to Hon. Carl T. Durham, chairman, JCAE, 8 Apr 58, Secretariat, Box 4929, MR&A 7 Hardtack, Vol. 3, RG 326, DOE Archives. [A65]
138. AEC Press Release No. A-98(J-3), 1 May 58, OGM, Box 2378, Weapons-AEC-DOD Tests of Weapons II, RG 326, DOE Archives. [A46]
139. Announced U.S. Nuclear Tests, pp. 9-11.
140. Richard G. Hewlett and Jack M. Holl, Atoms for Peace and War 1953-1961 (Berkeley: University of California Press, 1989), 546-48.
141. W. B. McCool to the Commissioners, 16 Jun 59, and attachments, Secretariat, Box 1360, Folder 2, MH&S 3 Radiation Vol. 2, RG 326, DOE Archives. [A56]
142. C. L. Dunham, M.D. to James T. Ramey, 2 May 61, JCAE General Correspondence, Box 310, Fallout Vol. 8, May 1961 thru June 1962, RG 128, NARA. [B1]
143. Sutow and Conard, "The Effects of Fallout Radiation on Marshallese Children," p. 3. [I5]
144. AEC 125/37, 31 May 61, enclosing Dr. C. L. Dunham to A. R. Luedecke, 17 May 61, Secretariat, Box 1370, MR&A 7-1 Proving Grounds, Vol. 1, RG 326, DOE Archives [B2]; Robert A. Conard, et al, Medical Survey of Rongelap People Seven Years After Exposure to Fallout, BNL 727 (T-260), May 62. [I6]
145. A. W. Betts, Memorandum for Record, 24 Oct 61, OGM, Box 5519, General Manager's Reading File November 1961, RG 326, DOE Archives. [B3]
146. AEC 141/50, 9 Nov 61, enclosing James K. Carr to Glenn T. Seaborg, 9 Nov 61, Secretariat, Box 1370, MR&A 7-1 Proving Grounds, Vol. 1, RG 326, DOE Archives. [B4]
147. AEC 604/59, 4 Dec 61, enclosing Clinton S. Maupin to James E. Reeves, 15 Nov 61, Secretariat, Box 1360, MH&S 3, Radiation, Vol. 3, RG 326, DOE Archives. [B5]
148. AEC 141/51, 13 Dec 61, enclosing Glenn T. Seaborg to Stewart L. Udall, 27 Nov 61, Secretariat, Box 1370, MR&A 7-1 Proving Grounds, Vol. 1, RG 326, DOE Archives. [B6]
149. LRB, University of Washington, Seattle, WA., "Radioactivity in the Biota at Islands of the Central Pacific 1954 - 1958," 15 Feb 62, UWFL-79, McCraw, Box 9, RG 326, DOE Archives. [B7]
150. Executive Order 11021, 7 May 62 Codification of Presidential Proclamations and Executive Orders, April 13, 1945 - January 20, 1989: 867-869. [B8]

151. AEC 604/68, 17 Sep 62, enclosing Anthony J. Celebrezze to Chet Holifield and Melvin Price, 17 Aug 62, Secretariat, Box 1360, Folder MH&S 3, Radiation, Vol. 5, RG 326, DOE Archives. [B9]
152. AEC 604/71, Enclosure II, 14 Jan 63, Secretariat, Box 1360, Folder MH&S 3, Radiation, Vol. 5, RG 326, DOE Archives. [B10]
153. W. J. Stanley, "Program Review: DOE Marshall Islands Programs," 19 Jan 83, pp. 1-2, 14, Harry Brown files (hereafter Brown), MI General, NV. [H9]
154. Robert Conard and Arobati Hicking, "A Preliminary Statement Concerning the Medical Survey of the Rongelap People Ten Years after their Exposure to Fallout Radiation," 15 Mar 64, Secretariat, Box 1360, MH&S 3 Radiation Vol. 7, RG 326, DOE Archives. [B11]
155. AEC general manager to Ataji L. Balos, 1 May 64, McCraw, Box 12, 3.0 (NEES Administration) 2-14-63-1966, Correspondence-General Public, RG 326, DOE Archives. [F22]
156. AEC 604/88, 12 Aug 64, enclosing Anthony J. Celebrezze, Memorandum for the President, 16 Jul 64, Secretariat, Box 1360, MH&S 3 Radiation Vol. 8, RG 326, DOE Archives. [B12]
157. U. S., Statutes at Large, Vol. 78: 243. [B13]
158. U. S., Statutes at Large, Vol. 78: 601-602. [B14]
159. Charles L. Dunham to John T. Conway, 19 Oct 64, JCAE General Correspondence, Box 712, Bikini Atoll, RG 128, NARA. [B15]
160. Robert Conard, "Preliminary Statement of Medical Findings in the 1965 Survey of the Rongelap People (11 Years After Exposure to Fallout Radiation)," 1 Jun 65, Secretariat, Box 1360, MH&S 3 Radiation Vol 8, RG 326, DOE Archives. [B16]
161. Edward E. Held, "Gamma Dose Rates at Rongelap Atoll, 1954-1963," UWFL-91, May 65, McCraw, Box 9, Gamma Dose Rates at Rongelap Atoll, 1954-1963, RG 326, DOE Archives. [B17]
162. Assistant General Manager for Research and Development to John T. Conway, 5 Aug 65, JCAE General Correspondence, Box 311, Fallout Vol 10-May 1964 thru May 1968, RG 128, NARA. [B18]
163. "Marshall Islands A Chronology," p. 18. [A27]
164. C. L. Dunham to Commissioners, 11 Oct 65, Secretariat, Box 1360, MH&S 3 Radiation Vol. 3, RG 326, DOE Archives. [B19]
165. E. E. Held, S. P. Gessel, & R. B. Walker, "Atoll Soil Types in Relation to the Distribution of Fallout Radionuclides," UWFL-92, Aug 65, McCraw, Box 9, RG 326, DOE Archives. [B20]
166. Sutow and Conard, "The Effects of Fallout Radiation on Marshallese Children," p. 8. [I5]

167. Lyndon B. Johnson to the President of the Senate and Speaker of the House, 21 Aug 67, Weekly Compilation of Presidential Documents, 28 Aug 67, p. 1191. [I3]
168. "Program Review: DOE Marshall Islands Programs," p. 2. [H9]
169. S. G. English to John T. Conway, 12 May 66, General Correspondence, Box 712, Bikini Atoll, RG 128, NARA. [B21]
170. C. L. Dunham to Commissioners, 17 Jan 67, Secretariat, Box 7716, MH&S 3 Radiation Vol. I, RG 326, DOE Archives. [B22]
171. Dunham to Commissioners, 17 Jan 67. [B22]
172. S. Udall to G.T. Seaborg, 7 Dec 66, Secretariat, Box 7716, MH&S 3 Radiation Vol. 1, RG 326, DOE Archives. [B23]
173. Sutow and Conard, "The Effect of Fallout Radiation on Marshallese Children," pp. 6-7, 11. [I5]
174. AEC 604/100, 31 Jan 67, enclosing Charles L. Dunham to Files, 26 Jan 67, Secretariat, Box 7716, MH&S Radiation Vol. I, RG 326, DOE Archives. [B24]
175. C. L. Dunham to Commissioners, 12 May 67, Secretariat, Box 7716, MH&S 3 Radiation Vol. I, RG 326, DOE Archives. [B25]
176. Harold L. Beck, Burton G. Bennett, & Tommy F. McCraw, "External Radiation Levels On Bikini Atoll, May 1967," HASL-190, Dec 67, McCraw, Box 9, External Radiation Levels on Bikini Atoll, May 1967, RG 326, DOE Archives. [B26]
177. James T. Hiyane, "1967 Bikini Radiological Resurvey-Marshalls Agriculture Report," McCraw, Box 9, Environmental Levels-Bikini & Rongelap-Food, Diet, Etc., RG 326, DOE Archives. [B27]
178. AEC 604/110, 10 Jul 68, Jack A. Tobin, "Preliminary Anthropologist's Report-Bikini Atoll Survey, 1967," Appendix I to Enclosure 1, Secretariat, Box 7762, MH&S 3 Radiation Vol. I, RG 326, DOE Archives. [B32]
179. U.S., Statutes at Large, Vol. 81: 15. [B28]
180. U.S. President, Letter to the President of the Senate and Speaker of the House, 21 Aug 67, Weekly Compilation of Presidential Documents, 1191-1192. [I3]
181. "Marshall Islands A Chronology," p. 17. [A27]
182. John R. Totter, Philip F. Gustafson, Roy D. Maxwell, "Meeting to Discuss Return of the Natives to the Bikini Atoll," 28 Feb 68, p. 5 (attachment to 2 Apr 68 Memorandum by John R. Totter), Secretariat, Box 7716, MH&S 3 Vol. 2, RG 326, DOE Archives. [B29]
183. John R. Totter to Commissioners, 31 May 68, OGM, Box 5539, General MGR's RDG. File May 16-31, 1968, RG 326, DOE Archives. [B30]

184. "Amendment to the Agreement in Principle Regarding the Use of Enewetak Atoll," 14 Mar 68, Deal P. [B31]
185. Martin B. Biles to Frank Cluff, 13 May 68, McCraw, Box 13, 5.1 (NEES Administration File #2), Unclassified Reading File 1969, RG 326, DOE Archives. [F23]
186. "Marshall Islands A Chronology," p. 19. [A27]
187. "Marshall Islands A Chronology," p. 19. [A27]
188. AEC 604/110, Enclosure 1, "Report of the Ad Hoc Committee to Evaluate the Radiological Hazards of Resettlement of the Bikini Atoll," Secretariat, Box 7762, MH&S-3 Radiation Vol. I, RG 326, DOE Archives [B32]; and F. T. Hobbs to File, 16 Jul 68, Secretariat, Box 7762, MH&S-3 Radiation Vol. I, RG 326, DOE Archives. [B33]
189. Secretary of the Interior to the President, 25 Jul 68, Secretariat, Box 7762, MH&S 3 Radiation Vol. I, RG 326, DOE Archives. [B34]
190. Appendix A, "Memorandum of Understanding Between the Division of Military Application, Atomic Energy Commission, and the Defense Atomic Support Agency, Department of Defense on Clean-Up of Bikini Atoll," Records Center B-9 D-156, 635 Bikini, RG 326, LANL [I2]
191. AEC Press Release L-191, 12 Aug 68, JCAE General Correspondence, Box 712, Bikini Atoll, RG 128, NARA. [B35]
192. Harry Anderson to James T. Ramey, 3 Sep 68, Secretariat, Box 7762, MH&S-3 Radiation Vol. 1, RG 326, DOE Archives. [I4]
193. Tommy F. McCraw to Martin B. Biles, 15 Oct 68, McCraw, Box 15 5.01 (NEES Administration) File #1.1, Unclassified Reading File May - Dec 1968, RG 326, DOE Archives. [F24]
194. David Black to Charles Zwick, 8 Nov 68, Attachment 2 in Wolff to Cunningham, 19 Dec 75, L Joe Deal Collection (hereafter Deal), Box 13, 4 Bikini, RG 326, DOE Archives [B36]; AEC 604/115, 13 Sep 68, enclosing Edward B. Giller to Commissioners, 12 Sep 68, Secretariat, Box 7762, MH&S 3 Radiation Vol. I, RG 326, DOE Archives. [B37]
195. "Marshall Islands A Chronology," p. 19. [A27]
196. U.S., Statutes at Large, Vol. 82: 1213. [B38]
197. Edward E. Held, "Radiological Resurvey of Animals, Soils and Groundwater at Bikini Atoll, 1969," NVO-269-8, Nov 69, McCraw, Box 9, Radiological Resurvey of Animals, Soils & Groundwater at Bikini Atoll, 1969, RG 326, DOE Archives. [B45]
198. John A. Harris to Commissioners, 17 Jan 69, OGM, Box 5541, General Manager's Rdg. File Jan. 16-31 1969, RG 326, DOE Archives. [I1]
199. Paul H. Nitze to Walt Rostow, 17 Jan 69, Secretariat, Box 7762, MH&S-3 Radiation Vol. I, RG 326, DOE Archives. [F34]

200. "Memorandum of Understanding Between the Division of Military Application, Atomic Energy Commission, and the Defense Atomic Support Agency, Department of Defense, on Cleanup of Bikini Atoll," 11 Feb 69, Attachment 5 in Wolff to Cunningham, 19 Dec 75, Deal, Box 13, 4 Bikini, RG 326, DOE Archives. [B36]
201. John A. Harris to Commissioners, 26 Feb 69, Secretariat, Box 7762, MH&S 3 Radiation Vol. 2, RG 326, DOE Archives [B39]; and L. M. Mustin to Secretary of Defense et al, 2 May 69, Secretariat, Box 7762, MH&S 3 Radiation Vol. 2, RG 326, DOE Archives. [B46]
202. John R. Totter to Commissioners, 28 May 69, Secretariat, Box 7762, MH&S 3 Radiation Vol. 2, RG 326, DOE Archives. [B40]
203. Appendix A, Robert Miller, "Planning Directive, OC-11-3-69, Bikini Clean-up Operation," 20 Mar 69. [I2]
204. AEC Press Release M-108, "Conard Named to Monitor Bikinians," 1 May 69, Secretariat, Box 7762, MH&S Radiation Vol. 2, RG 326, DOE Archives. [B41]
205. Sutow and Conard, "The Effect of Fallout Radiation on Marshallese Children," p. 10. [I5]
206. "Amendment to the Agreement in Principal Regarding the Use of Enewetak Atoll," 19 Aug 69, Deal P. [B42]
207. John A. Harris to Commissioners, 8 Oct 69, Secretariat, Box 7762, MH&S 3 Radiation Vol. 2, RG 326, DOE Archives. [B43]
208. AEC 604/121, 28 Oct 69, enclosing Edward B. Giller to Commissioners, 27 Oct 69, Secretariat, Box 7762, MH&S 3 Radiation Vol. 2, RG 326, DOE Archives. [B44]
209. Kiste, The Bikinians, p. 180. [F1]
210. John R. Totter to Chairman Seaborg, et al., 24 Apr 70, Secretariat, Box 7762, Folder 3, MH&S-3, Radiation Vol. 3, RG 326, DOE Archives. [C1]
211. Martin B. Biles memo to files, n.d., Deal, Box 13, 4-1 Bikini Radiological Survey - Resettlement, RG 326, DOE Archives [C82]; "Fact Sheet - Bikini Resettlement", 2 Sep 75, Deal, Box 5, Fact Sheet - Bikini Resettlement, RG 326, DOE Archives. [C83]
212. Minutes of the 134th Meeting, Advisory Committee for Biology and Medicine (ACBM), 7-8 May 70, McCraw, Box 8, Minutes of Meetings ACBM Meeting #101 to #145, RG 326, DOE Archives. [G67].
213. AEC 604/138, 2 Jun 70, Secretariat, MH&S 3 Radiation Vol. 3, RG 326, DOE Archives [C2]; Tommy F. McCraw to Martin B. Biles, 5 Aug 70, Deal P [C3]; Martin B. Biles to Chairman Seaborg, et al., 17 Nov 70, Deal P [C4]; Bruce W. Wachholz to Theodore Mitchell, 21 Aug 79, Tab A, Deal, Box 13, Marshall Islands 1979-1980, RG 326, DOE Archives. [C114]

214. Martin B. Biles to Stanley Carpenter, 3 Nov 74, Deal, Box 5, Fact Sheet - Bikini Resettlement, RG 326, DOE Archives. [C46]
215. "Compensation for the People of Rongelap and Utirik. A Report by the Special Joint Committee Concerning Rongelap and Utirik Atolls to the Fifth Congress of Micronesia, Second Regular Session, February 28, 1974," JCAE General Correspondence, Box 712, Bikini Atoll, RG 128. [C42]
216. Wachholz to Mitchell, 21 Aug 79. [C114]
217. Wachholz to Mitchell, 21 Aug 79. [C114]
218. Kiste, The Bikinians, p 181. [F1]
219. Martin B. Biles to Edward E. Johnston, 17 Jun 71, McCraw, 5-3-(NEES Administration) Files #4 Unclassified Reading File 1971, RG 326, DOE Archives. [G68]
220. Robert E. Miller to R. E. Hollingsworth, 8 Jun 72, McCraw, Box 5, Folder 3, Organization, RG 326, DOE Archives [C5]; Robert E. Miller to E. B. Giller, 2 Aug 71, McCraw, Box 5, Folder 1, Radiological Survey, RG 326, DOE Archives. [C6]
221. Edward B. Giller to Robert E. Miller, 22 Jul 71, Deal P. [C8]
222. "Program Review: DOE Marshall Islands Programs." [H9]
223. DISTAD Palau to SECSTATE Wash. DC, 27 Jan 72, Document 48025, CIC. [G15]
224. SECY-2686, 6 Sep 72, Secretariat, Box 7929, Folder 1, MH&S 3, Radiation Vol. I, RG 326, DOE Archives.[C9]; Henry I. Kohn, "Rongelap Reassessment Project Report," (1 Mar 89), EH, p. 15. [D89]
225. Tommy F. McCraw to files, 24 Mar 72, McCraw, Box 15, NEES Reading File, RG 326, DOE Archives. [G69]
226. HICOMTERPACIS SAIPAN to ZEN/ALDISTAD TERPACIS, et al., 19 Apr 72, McCraw, Box 5, Folder 3, Organization, RG 326, DOE Archives. [C10]
227. HICOMTERPACIS SAIPAN to ZEN/ALDISTAD TERPACIS, et al., 18 Apr 72, [C10]; Joint Statement By High Commissioner Edward E. Johnston and Ambassador Franklin Haydn Williams Given at Saipan Mariana Island 18 Apr 72, McCraw, Box 5, Folder 3, Organization, RG 326, DOE Archives [C11]; G. Warren Nutter to Director, Defense Nuclear Agency and Chairman, Atomic Energy Commission, 17 Jul 72, McCraw, Box 5, Folder 3, Organization, RG 326, DOE Archives. [C12]
228. Wachholz to Mitchell, 21 Aug 79. [C114]
229. Joseph L. Dickman to Assistant Secretary of Defense (International Security Affairs), 30 Aug 72, McCraw, Box 5, Folder 3, Organization, RG 326, DOE Archives. [Parry is crossed out on this copy] [C13]; Eniwetok-Field Trip Report, 17 May 72, Roger Ray's files, Eniwetok Field Trip Report May 17, 1972. [G1]

230. Martin B. Biles to Chairman Schlesinger, et al., 1 Jun 72, McCraw, Box 5, Folder 1, Radiological Survey, RG 326, DOE Archives [C14]; Eniwetok--Field Trip Report, 17 May 72. [G1]
231. Miller to Hollingsworth, 8 Jun 72 [C5]; Biles to Chairman Schlesinger, et al., 1 Jun 72 [C14]; Eniwetok--Field Trip Report, 17 May 72. [G1]
232. Miller to Hollingsworth, 8 Jun 72. [C5]
233. Biles to Chairman Schlesinger, et al., 1 Jun 72. [C14]
234. Martin B. Biles to Chairman Schlesinger, et al., 1 Jun 72 [C14]; SAMTEC/SE/VAFB CA to WTOE/SAMTEC/LO ENIWETOK MI, et al., 26 May 72, Deal, Box 12, Eniwetok Background, RG 326, DOE Archives. [C15]
235. William W. Gay to Edward B. Giller, Jul 72, McCraw, Box 5, Folder 3, Organization, RG 326, DOE Archives [C16]; Martin B. Biles to Chairman Schlesinger, et al., 10 Aug 72, McCraw, Box 5, Folder 1, Radiological Survey, RG 326, DOE Archives. [C17]
236. R. E. Hollingsworth to Spofford G. English, et al., 1 Aug 72, McCraw, Box 5, Folder 3, Organization, RG 326, DOE Archives [C18]; Mahlon E. Gates to Roger E. Batzel, 25 Aug 72, McCraw, Box 5, Folder 3, Organization, RG 326, DOE Archives. [C19]
237. Joseph L. Dickman to the assistant secretary of defense, 30 Aug 72, Document 48084, CIC. [G19]
238. "Meeting With Ujelang Leaders Concerning the Return of the People of Enewetak," 22 Aug 72, Document 48078, CIC [G17]; "Second Meeting With Ujelang Leaders Concerning the Return of the People of Enewetak," 23 Aug 72, Document 48079, CIC. [G18]
239. SECY-2686, 6 Sep 72. [C9]; "Rongelap Reassessment." [D89]
240. Mahlon E. Gates to F. A. Camm, 1 Nov 72, McCraw, Box 5, Folder 3, Organization, RG 326, DOE Archives [C20]; Frank A. Camm to M. E. Gates, 13 Sep 72, McCraw, Box 5, Folder 3, Organization, RG 326, DOE Archives. [C21]
241. "Marshall Islands A Chronology," p. 23. [A27]
242. "Planning and Operations Directive (NVO-121) - 1972 Eniwetok Atoll Pre-cleanup Radiological Survey," Deal, Box 12, Eniwetok-Background, RG 326, DOE Archives [C22]; W. W. Gay to General Camm, 14 Dec 72, McCraw, Box 5, Folder 3, Organization, RG 326, DOE Archives. [C27]
243. Grant C. Reynolds to Acting Assistant Secretary of the Air Force, 12 Oct 72, John Rudolph's files (hereafter Rudolph), DOE Office of health physics (EH) [C23]; People of Enewetak v. Laird, McCraw, Box 9, Radiological Survey, RG 326, DOE Archives. [C24]



244. SECY-2925, 1 Feb 73, McCraw, Box 9, Radiological Survey, RG 326, DOE Archives [C28]; Mahlon E. Gates to F. A. Camm, 2 Nov 72, McCraw, Box 5, Radiological Survey, RG 326, DOE Archives [C29]; Frank A. Camm to Chairman Ray, 1 Oct 73, Secretariat, 7929, MH&S 3 Radiation Vol. II., RG 326, DOE Archives [C36]; Gates to Camm, 1 Nov 72. [C20]
245. SECY-2925, 1 Feb 73. [C28]
246. General Manager to Edward J. Bauser, 15 Jan 73, Secretariat, Box 7929, MH&S 3 Radiation Vol. I, RG 326, DOE Archives. [C25]
247. General Manager to Bauser, 15 Jan 73 [C25]; Extract of SECY 2794, 16 Nov 72, Secretariat, Box 7930, MH&S 16-5 Accident and Accident Prevention, RG 326, DOE Archives. [C26]; William H. Adams, et al., Medical Status of Marshallese Accidentally Exposed to Bravo, Jan. 1987-Dec. 1987, BNL-52192, 23 Jan 89, Roger Ray Collection (hereafter Ray's files). [H49]
248. Peter T. Coleman to Stanley S. Carpenter, 6 Dec 72, Document 48155, CIC. [G20]
249. Robert C. Hill to Secretary of the Air Force and Director Defense Nuclear Agency, 29 Sep 73, McCraw, Box 5, Folder 3, Organization, RG 326, DOE Archives. [C41]
250. Wachholz to Mitchell, 21 Aug 79. [C114]
251. Robert A. Conard, et al., BNL 51261 Review of Medical Findings in a Marshallese Population Twenty-Six Years After Accidental Exposure to Radioactive Fallout (BNL, Jan 1980), p. v, Roger Ray Collection. [G42]
252. Camm to Chairman Ray, 1 Oct 73. [C36]
253. Wachholz to Mitchell, 21 Aug 79. [C114]
254. SECY-2925, 1 Feb 73. [C28]
255. John A. Erlewine to Edward J. Bauser, 12 Jun 73, Secretariat, Box 7929, MH&S 3 Radiation Vol. II, RG 326, DOE Archives. [C34]
256. Olympio T. Borja to Chairman, AEC, 23 Apr 73, Secretariat, Box 7929, MH&S 3 Radiation, Vol. II, RG 326, DOE Archives [C7]; Stanley S. Carpenter to Dr. Dixy Lee Ray, 23 May 73, Secretariat, Box 7929, MH&S 3 Radiation Vol. II, RG 326, DOE Archives [C30]; Clarence E. Larson to Olympio T. Borja, 31 Aug 73, Secretariat, Box 7929, MH&S 3 Radiation Vol. II, RG 326, DOE Archives. [C31]
257. Smith Gideon to Edward E. Johnston, 14 May 73, McCraw, Box 5, Folder 3, Organization, RG 326, DOE Archives. [C32]; T. J. Bigley to Smith Gideon, 31 May 73, McCraw, Box 5, Folder 3, Organization, RG 326, DOE Archives. [C33]
258. Frank A. Camm to Mahlon E. Gates, 3 May 73, Document 46894, CIC. [G16]
259. Extract of SECY 3151-GM Information Report #223, Secretariat, Box 7929, MH & S 3 Radiation Vol II, RG 323, DOE Archives. [C35]

260. Camm to Chairman Ray, 1 Oct 73 [C36]; "Report By The AEC Task Group on Recommendations for Cleanup and Rehabilitation of Enewetak Atoll, 19 Jun 74, McCraw, Box 9, Report By the AEC Task Group on Recommendations for Cleanup & Rehabilitation of Enewetak Atoll, RG 326, DOE Archives. [C45]
261. Roger Ray to RHWEDAB & Manager, 20 Aug 73, Document 46851, CIC. [G21]
262. Roy L. Ash to James R. Schlesinger, et al., 18 Oct 73, Secretariat, Box 7929, MH&S 3 Radiation Vol. II, RG 326, DOE Archives [C37]; Frank A. Camm to Warren B. Johnson, 16 Nov 73, McCraw, Box 5, Folder 3, Organization, RG 326, DOE Archives. [C38]
263. K.V. Marsh, et al., UCRL-51913 Pt. 1, Radiological and Chemical Studies of the Ground Water at Enewetak Atoll 1. Sampling, Field Measurements, and Analytical Methods (LLL, 26 Sep 75), Deal, Box 12, 12 Enewetak, RG 326, DOE Archives. [C87]
264. Draft "Memorandum of Agreement Between the Department of the Air Force and the Defense Nuclear Agency on the Plan for Transfer of Enewetak Atoll", 19 Oct 73, McCraw, Box 5, Folder 3, Organization, RG 326, DOE Archives [C39]; HQ DNA WASH to RUWMHAC/CDR FCDNA Kirtland AFB, 21 Dec 73, McCraw, Box 5, Folder 3, Organization, RG 326, DOE Archives. [C40]
265. HICOMTERPACIS SAIPAN to ZEN/ALDISTADS TERPACIS, 9 Jan 74, Document 48243, CIC. [G22]
266. T. Sabo Ulechong to Dixy Lee Ray, 28 Mar 74, Secretariat, Box 7929, MH&S 3 Radiation Vol. 3, RG 326, DOE Archives. [C43]
267. "Compensation for the People of Rongelap and Utrik." [C42]
268. James S. Cannon to Tom Rehm, et al., 9 Apr 74, Secretariat, Box 7929, MH&S 3 Radiation Vol. 3, RG 326, DOE Archives. [C44]
269. Bruce W. Wachholz to L. Lee Deal, 24 Aug 77, Deal, Box 13, Marshall Islands  
269.5. Victor A. Nelson, NVO-269-32, Radiological Survey of Plants, Animals and Soil at Christmas Islands and Seven Atolls in the Marshall Islands Progress Report for 1974-1975 (University of Washington College of Fisheries Laboratory of Radiation Ecology, January 1970), McCraw, Box 9, RG 326, DOE Archives. [C71]
270. Wachholz to Mitchell, 21 Aug 79. [C114]
271. Cross Reference Sheet to SECY-74-682, 22 May 74, Secretariat, Box 7929, MH&S 3 Radiation Vol. 3, RG 326, DOE Archives. [C124]
272. John W. McEnery to Martin B. Biles, 14 May 74, EP files. [G23]
273. Mahlon E. Gates to James L. Liverman, 17 Jan 75, McCraw, Box 5, Folder 3, Organization, RG 326, DOE Archives. [C56]
274. "Report By The AEC Task Group on Recommendations for Cleanup and Rehabilitation of Enewetak Atoll, 19 Jun 74 [C45]; "Summary of Task Group Recommendations Enewetak Atoll," 9 Jul 74, Deal P. [C52]

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277. SECY 75-449, 27 Dec 74, Secretariat, Box 7978, MH&S 3 Radiation, RG 326, DOE Archives [C50]; SECY 75-81, 24 Jul 74, Secretariat, Box 7978, MH&S 3-2 Contamination & Decontamination, RG 326, DOE Archives. [C51]; Warren D. Johnson to Dixy Lee Ray, 7 Jun 74, Secretariat, Box 7929, MH&S 3 Radiation Vol. 3, RG 326, DOE Archives. [C63]
278. Peter T. Coleman, et al., to the Enewetak Council, 9 Sep 74, Deal, Box 12, 12-1 Council, RG 326, DOE Archives. [C86]
279. SECY 75-449, 27 Dec 74 [C50]; Extract from HICOMTERPACIS, 10 Sep 74 Press Release, 10 Sep 74, Document 48337, CIC. [G14]
280. L. Joe Deal to John C. Whitnah, 27 Sep 74, McCraw, Box 5, Folder 3, Organization, RG 326, DOE Archives. [C62]
281. Nelson, NVO-269-32, Radiological Survey of Plants, Animals and Soil at Christmas Islands and Seven Atolls in the Marshall Islands Progress Report for 1974 - 1975 [C71]
282. Biles to Carpenter, 3 Nov 74. [C46]  
[Att. to DOE report to Stanley Ray, Deal 7/10/73]
283. "Enewetak - Ujelang Field Trip Report", Dec 74, Deal, Box 5, Fact Sheet - Bikini Resettlement, RG 326, DOE Archives [C84]; Tommy F. McCraw to L. Joe Deal, 22 Jan 75, Deal, Box 5, Fact Sheet - Bikini Resettlement, RG 326, DOE Archives. [C85]  
[Att. Undersecretary of the Interior to Julian P. Morgan, 21 May 73. Enclosure in]
284. Stanley S. Carpenter to Martin B. Biles, 4 Dec 74, Deal, Box 5, Fact Sheet - Bikini Resettlement, RG 326, DOE Archives. [Attached to C46]
285. Resolution of the Council of Enewetak, 7 Dec 74, Document 48377, CIC. [G13]
286. McCraw to Deal, 22 Jan 75. [C85]
287. Gates to Liverman, 17 Jan 75. [C56]
288. Liverman to Gates, 12 Mar 75, EP files. [G2]
289. Ernest Graves to Robert C. Seamans, 6 Feb 75, McCraw, Box 5, Folder 3, Organization, RG 326, DOE Archives. [C57]
290. L. Joe Deal to James L. Liverman, 19 Feb 75, McCraw, Box 5, Folder 3, Organization, RG 326, DOE Archives. [C58]

291. L. Joe Deal to Harry U. Brown, 24 Feb 75, Deal P. [C59]; Secretary of the Interior to James R. Schlesinger, 7 Mar 75, Deal, Box 13, 4-3 Bikini-Lawsuit Correspondence, RG 326, DOE Archives. [C60]
292. Nelson, NVO-269-32, Radiological Survey of Plants, Animals and Soil at Christmas Islands and Seven Atolls in the Marshall Islands Progress Report for 1974 - 1975. [C71]
293. Wachholz to Mitchell, 21 Aug 79. [C114]
294. Robert Conard to James L. Liverman, 30 Apr 75, Deal P. [G38]
295. NVO-213, Enewetak Radiological Support Project Final Report (Las Vegas: DOE, Nevada Operations Office, Sep 82) [C78]; PSAD 79-54 Report To The Congress, Enewetak Atoll--Cleaning Up Nuclear Contamination (GAO, 1979), pp 7-10. [C116]
296. H. P. Clement to Kent Frizzell, 29 May 75, Deal, Box 13, 4-3 Bikini-Lawsuit Correspondence, RG 326, DOE Archives. [C61]
297. NVO-158, Planning and Operations Directive 1975 Bikini Radiological Survey (NVO, ERDA, June 1975), McCraw, Box 9, RG 326, DOE Archives. [C54]; Paul H. Gudiksen and William L. Robinson, Preliminary External-Dose Estimates for Future Bikini Atoll Inhabitants (Lawrence Livermore Laboratory, 6 Aug 75), Deal, Box 13, 4-3 Bikini-Lawsuit Correspondence, RG 326, DOE Archives. [C55]
298. U.S. Statutes at Large, Volume 89: 212. [C53]
299. Kent Frizzel to James R. Schlesinger, 17 Jul 75, Deal, Box 13, 4-3 Bikini - Lawsuit Correspondence, RG 326, DOE Archives. [C65]
300. Martin B. Biles to Roger Ray, 2 Sep 75, Deal, Box 13, 4-1 Bikini Radiological Survey-Resettlement, RG 326, DOE Archives [C64]; Memo to Guy H. Cunningham, 29 Oct 75, Deal, Box 13, 4-3 Bikini - Lawsuit Correspondence, RG 326, DOE Archives [C67]; "The People of Bikini, et al., Plaintiffs vs. Robert C. Seamans, Jr., et al., Defendants: Motion for Preliminary Injunction", Deal, Box 13, 4-7 Bikini - Motions, RG 326, DOE Archives [C68]; L. Joe Deal to Joseph K. Bratten and W. W. Burr, 24 Nov 75, Deal, Box 13, 4-3 Bikini - Lawsuit Correspondence, RG 326, DOE Archives [C70]; "Relocation of Bikini Island People Will Begin August 28," 25 Aug 78, Deal, Box 13, Marshall Islands July-Dec. 1978, RG 326, DOE Archives. [C105]
301. "Bikini Return Delayed", 22 Aug 75, Deal, Box 5, Fact Sheet-Bikini Resettlement, RG 326, DOE Archives. [C125]; Biles to Ray, 2 Sep 75. [C64]
302. Robert A. Conard, et al., BNL 50424, A Twenty-Year Review of Medical Findings in a Marshallese Population Accidentally Exposed to Radioactive Fallout (BNL, September 1975), pp. 72-75. [G10]
303. Agreement between the Defense Nuclear Agency and the Energy Research and Development Administration regarding the Interagency Support for Cleanup of Enewetak Atoll, attached to Martin B. Biles, DOS director, to Mahlon E. Gates, NV manager, 9 Oct 75, Ray's files; [G72] W. E. Shedd to James L. Liverman, 7 Jul 75, Deal, Box 13, 4-1 Bikini Radiological Survey-Resettlement, RG 326, DOE Archives [C72]; James L. Liverman to W.E. Shedd, 6 Aug 75, McCraw, Box 5, Folder 3,

Organization, RG 326, DOE Archives [C73]; J.K. Bratton to Alfred D. Starbird, 26 Jan 77, McCraw, Box 5, Folder 3, Organization, RG 326, DOE Archives. [C74]

304. Bill Clements to Kent Frizzell, 17 Sep 75, Deal, Box 13, 4-3 Bikini - Lawsuit Correspondence, RG 326, DOE Archives. [C66]

305. Memo to Guy H. Cunningham, 29 Oct 75 [C67]; "The People of Bikini, et al., Plaintiffs vs. Robert C. Seamans, Jr., et al., Defendants. Motion for Preliminary Injunction," [C68]; "Amended Motion for Preliminary Injunction and Notice of Motion", Deal, Box 12, 4-7 Bikini - Motions, RG 326, DOE Archives. [C69]

306. Martin B. Biles to Mahlon E. Gates, 9 Oct 75, Ray's files. [G72]

307. N. A. Greenhouse and R.P. Miltenberger, BNL 50797, External Radiation Survey and Dose Predictions for Rongelap, Utirik, Rongerik, Ailuk, and Wotje Atolls (BNL, 13 Dec 77), McCraw, Box 9, Environment Levels - Bikini & Rongelap - Food Diet Etc., RG 326, DOE Archives. [C91]

308. Wachholz to Mitchell, 21 Aug 79. [C114]

309. Roger Ray to James L. Liverman, 23 Jan 76, Ray's files [G73]; James L. Liverman to Roger Ray, 20 Feb 76, Ray's files. [G74]

310. Wachholz to Mitchell, 21 Aug 79. [C114]

311. Wachholz to Mitchell, 21 Aug 79. [C114]

312. Mahlon E. Gates to NV Principal Staff, et al., 23 Feb 77, Deal P [C110]; "Final Agreements on Enewetak," n.d., Document 48540, CIC. [G9]

313. "Agreement Concerning Cleanup of Enewetak Atoll", 16 Sep 76, Summary of Relevant Background for Land Use Claims, Deal P [C75]; Harry U. Brown to Peter Oliver, 21 Aug 87, Rudolph's files, Letter Files, Letters-Marshall Islands-1987, EH: [C76] President Amata Kabua, Collected May 3, 1990, Rudolph's files, Letters-Marshall Islands 1990, EH: ID104

314. Fred M. Zeder to Philip Burton, 17 Sep 76, Document 48542, CIC. [G12]

315. W. J. Bair to J. E. Liverman, 12 Jan 77, Deal, Box 13, Marshall Islands 1975-1977, RG 326, DOE Archives. [C88]

316. Victor A. Nelson, NVO-269-32, Radiological Survey of Plants, Animals and Soil at Christmas Islands and Seven Atolls in the Marshall Islands Progress Report for 1974-1975 [C71]; Memo from Roger Ray, 7 Oct 77, McCraw, Box 5, Radiological Survey, RG 326, DOE Archives. [C77]

317. Report of the Meeting Between the United States Energy Research and Development Administration and the Trust Territory of the Pacific Islands Regarding Medical Care of the Rongelap and Utirik People, Kwajalein, M.I., February 4-5, 1977, Brown, Rongelap 6, NV. [G3]

318. James L. Liverman to Acting Administrator, 24 Feb 77, EP files. [G4]

319. NVO-213, Enewetak Radiological Support Project Final Report [C78]; John Noble Wilford, "1947-1977: A-Test Atoll Being Resettled," Washington Star, 11 Apr 77. [C79]
320. "Staff Review of Bikini Atoll Cleanup and Rehabilitation," 3 Apr 78, McCraw, Box 9, Radiological Survey, RG 326, DOE Archives. [C96]; Tommy F. McCraw to Hal Hollister, 17 May 78, Deal, Box 13, Marshall Islands - Jan - June 1978, RG 326, DOE Archives. [C97]; Bruce W. Wachholz to Mitchell, 21 Aug 79. [C114]
321. Hal Hollister to James L. Liverman, 21 Apr 77, EP files. [G5]
322. L. Joe Deal to Hal Hollister, 26 Apr 77, EP files. [G6]
323. James A. Joseph to Harold Brown, 15 Jun 77, Deal, Box 13, Marshall Islands 1975-1977, RG 326, DOE Archives. [C80]
324. Robert A. Conard, "Notes on ERDA Meeting to Discuss Problems Concerning the Medical Examinations of Marshallese People", Deal, Box 13, Marshall Islands 1975-1977, RG 326, DOE Archives. [C89]
325. "Memorandum of Understanding Between U.S. Energy Research and Development Administration and the Department of Defense on Planning and Support for Safeguard C and Conduct of Nuclear Weapons Tests Outside North American Continental Limits," 26 May 77, Brown, Roger Ray (DPO) Corres. 1984, RG 434, NV. [G24]
326. Tommy F. McCraw to L. Joe Deal, 25 Jul 77, Deal, Box 13, Marshall Islands 1975 - 1977, RG 326, DOE Archives. [C92]
327. Paul H. Riley to Assistant Secretary of the Navy, et al., 28 Jun 77, Deal, Box 13, Marshall Islands 1975-1977, RG 326, DOE Archives. [C90]
328. Bruce W. Wachholz to L. Joe Deal, 24 Aug 77, Deal, Box 13, Marshall Islands 1975-1977, RG 326, DOE Archives. [C93]
329. Wachholz to Mitchell, 21 Aug 79. [C114]
330. Wachholz to Mitchell, 21 Aug 79. [C114]
331. Harry U. Brown to Peter Oliver, 21 Aug 87 [C76]; U.S. Statutes at Large, Volume 91: 1159-1161. [C94]
332. "Relocation of Bikini Island People Will Begin August 28," 25 Aug 78, Deal, Box 13, Marshall Islands July-Dec. 1978, RG 326, DOE Archives. [C105]; Wachholz to Mitchell, 21 Aug 79. [C114]
333. Greenhouse and Miltenberger, BNL 50797, External Radiation Survey and Dose Predictions for Rongelap, Utirik, Rongerik, Ailuk, and Wotje Atolls. [C91]
334. Office of Micronesian Status Negotiations, "The Negotiations for the Future Political Status of the Trust Territories of the Pacific Islands," 20 Sep 83, Rudolph's files, Box 15, EH. [G46]

335. William L. Robinson to Tommy F. McCraw, 27 Jan 78, Document 45079, CIC. [G25]
336. Secretary of Interior [Cecil D. Andrus] to Harold Brown, 5 Jan 78, Deal, Box 13, Marshall Islands Jan-June 1978, RG 326, DOE Archives. [C95]
337. NVO-213, Enewetak Radiological Support Project Final Report. [C78]
338. Victor E. Noshkin, UCRL - 80587, Transuranium Radionuclides in Components of the Benthic Environment of Enewetak Atoll LLL, Feb 78, McCraw, Box 9, Radiological Survey, RG 326, DOE Archives. [C122]
339. Charles J. Treat to FC, 14 Mar 78, Document 47783, CIC. [G26]
340. Tommy F. McCraw to Hal Hollister, 17 May 78, Deal, Box 13, Marshall Islands Jan-June 1978, RG 326, DOE Archives [C97]; "Brief Review, Radiological Conditions in the Marshall Islands", 3 Nov 78, Deal, Box 13, Marshall Islands July-Dec. 1978, RG 326, DOE Archives [C101]; "Summary, Measured Body Burdens, 137 Cs Bikini Is. Residents", [Viewgraph] 2 Mar 79, McCraw, Box 9, Radiological Survey, RG 326, DOE Archives. [C115]
341. Paul G. Rogers and Tim Lee Carter to Harold Brown, 21 Apr 78, EH, Box 1086, Job 9189, 5470 Enewetak Cleanup, RG 434, EH. [G27]
342. W. J. Bair to Hal Hollister, 28 Apr 78, Deal, Box 13, Marshall Islands 1975-1977, RG 326, DOE Archives. [G7]
343. James L. Liverman to Ruth G. Van Cleve, 19 Jun 78, Deal, Box 13, Marshall Islands Jan-June 1978, RG 326, DOE Archives. [C102]
344. L. Joe Deal to Hal Hollister, 23 May 78, Deal, Box 13, Marshall Islands Jan-June 1978, RG 326, DOE Archives. [C98]; "Nuclear Testing-Pacific" [viewgraphs], Deal, Box 13, Marshall Islands Jan-June 1978, RG 326, DOE Archives. [C99]; "Yates Committee Hearings" [excerpt], 22 May 78, Deal, Box 13, Marshall Islands Jan-June 1978, RG 326, DOE Archives. [C100]
345. Matthew Nimetz to Members of the Micronesia Interagency Group, 11 Jul 78, Deal P [C111]; James L. Liverman to Joe Deal, 27 Jul 78, Deal P. [C112]
346. Draft action memorandum, 31 Jul 78, Deal, Box 13, Marshall Islands July-Dec. 1978, RG 326, DOE Archives. [C106]; "Marshall Islands Radiological Safety Program" [Viewgraphs], McCraw, Box 9, Radiological Survey, RG 326, DOE Archives [C108]; Radiological Survey Plan for the Northern Marshall Islands, 22 Aug 78, EP files. [G8]
347. "Memorandum of Agreement between Department of the Navy, Department of Energy and Department of the Interior", 2 Aug 78, Deal P. [C109]
348. "Statement of Understanding on the Part of the Government of the United States and the Government of the Trust Territory of the Pacific Islands Concerning the Move of the People of Bikini Island, August, 1978", 16 Aug 78, Deal, Box 13, Marshall Islands July-Dec 1978, RG 326, DOE Archives. [C103]



349. Brown to Oliver, 21 Aug 87 [C76]; "Relocation of Bikini Island People Will Begin August 28," 25 Aug 78, Deal, Box 13, Marshall Islands July-Dec. 1978, RG 326, DOE Archives [C105]; U.S. Statutes at Large, Volume 92, Part 1: 487-489. [C104]
350. "Relocation of Bikini Island People Will Begin August 28," 25 Aug 78. [C105]
351. "Brief Review, Radiological Conditions in the Marshall Islands," 3 Nov 78, Deal, Box 13, Marshall Islands July-Dec. 1978, RG 326, DOE Archives. [C101]
352. Draft action memorandum, 31 Jul 78 [C106]; "Stipulation of Dismissal," 27 Oct 78, Deal, Box 13, Marshall Islands 1979-1980, RG 326, DOE Archives. [C107]
353. PSAD 79-54 Report To The Congress, Enewetak Atoll—Cleaning Up Nuclear Contamination (GAO, 1979), pp 7-10. [C116]
354. "Summary, Measured Body Burdens, 137 Cs Bikini Is. Residents," [Viewgraph] 2 Mar 79, McCraw, Box 9, Radiological Survey, RG 326, DOE Archives. [C115]
355. R. R. Monroe to James L. Liverman, 9 Feb 79, Deal, Box 13, Marshall Islands 1979-1980, RG 326, DOE Archives. [C113]
356. "Fact Book: Major General Grayson D. Tate, Jr., Commander, Field Command, Defense Nuclear Agency Visit, Enewetak Atoll 25 - 29 May 1979", n.d., Document 45110, CIC. [G30]
357. *Juda v. U.S.*, 13 Cl. Ct. 667 (1987), p. 672. [G44]
358. W. J. Bair to Ruth Clusen, 29 May 79, Deal, Box 13, Marshall Islands 1979-1980, RG 326, DOE Archives. [C118]
359. Draft DOI report to Sidney Yates, Deal P. [C123]
360. *Juda v. U.S.*, 13 Cl. Ct. 667 (1987), p. 672. [G44]
361. Undersecretary of the Interior to Adrian P. Winkel, 21 May 79, Enclosure in draft letter to Charles B. Meinhold, 16 Nov 84, Rudolph's files, EH. [C117]
362. Memorandum from Roger Ray, 25 May 79, EP files. [G29]
363. Undersecretary of the Interior to Adrian P. Winkel, 21 May 79, Enclosure in draft letter to Charles B. Meinhold, 16 Nov 84, Rudolph's files, EH. [C117]
364. Bruce Wachholz to Ruth Clusen, et. al, 9 Jul 79, Deal, Box 13, Marshall Islands 1979-1980, RG 326, DOE Archives. [C119]
365. Bruce W. Wachholz to Ruth Van Cleve, 16 Aug 79, Deal, Box 13, Marshall Islands 1979-1980, RG 326, DOE Archives [C120]; David M. Rosenbaum to Ruth G. Van Cleve, 23 Aug 79, Deal, Box 13, Marshall Islands 1979-1980, RG 326, DOE Archives. [C121]
366. Amata Kabua to Iroijlaplap Joanes et al., 12 Sep 79, EH, Box 1086, Job 9189, 5470 Enewetak Cleanup, RG 434, EH-DOE records storage [G31]; Bruce W. Wachholz

to list, 3 Dec 79, EH, Box 1086, Job 9189, 5470 Enewetak Cleanup, RG 434, EH-DOE records storage. [G34]

367. NVO-213, Enewetak Radiological Support Project Final Report (Las Vegas: DOE, Nevada Operations Office, Sep 82) [C78]; "Marshall Islands A Chronology," p. 34. [A27]

368. "Resolution of the Council of Enewetak, 20 Sep 79, Document 239070, CIC, pp. 4-9. [G33]

369. "Resolution of the Council of Enewetak, 20 Sep 79, EH, Box 1086, Job 9189, 5470 Enewetak Cleanup, RG 434, EH [G32]; Wachholz to list [G34]; Theodore R. Mitchell, "Radiation Protection for Enewetak Atoll," Sep 79, Ray, Radiation Protection for Enewetak Atoll. [G35]

370. Bruce W. Wachholz to Ruth Van Cleve, 28 Sep 79, EH, Box 1086, Job 9189, 5470 Enewetak Cleanup, RG 434, EH-DOE records storage. [G36]

371. National Cytogenetics, Inc., "Assessment of Radiation Health Effects of the Resettlement of Enewetak Atoll," 12 Oct 79, Document 45058, CIC. [G37]

372. Ruth G. Van Cleve to Bruce Wachholz, 22 Oct 79, EH, Box 1086, Job 9189, 5470 Enewetak Cleanup, RG 434, EH-DOE records storage. [G41]

373. Wachholz to list [G34]; Theodore R. Mitchell to Ruth C. Clusen, 6 Nov 79, EH, Box 1086, Job 9189, 5470 Enewetak Cleanup, RG 434, EH-DOE records storage. [G39]

374. Wachholz to list [G34]; Roger Ray to L. Joe Deal and B.W. Wachholz, 15 Nov 79, EH, Box 1089, Job 9189, 5470 Enewetak Cleanup, RG 434, EH-DOE records storage. [G40]

375. Roger Ray to W. W. Howler, 12 Feb 85, Rudolph's files, Box 7 of 18, EH, [D22]

375. Van Cleve to Wachholz, 22 Oct 79. [G41]

376. Tessard et al. BNL 51862, Hybrid Absorbed Dose for People at Rongelap

376. Confidential Review of Medical Findings in a Marshallese Population Twenty-Six Years After Accidental Exposure to Radioactive Fallout, BNL 51261, Jan 80. [D1]

377. "Marshall Islands A Chronology: 1944-1981," p. 35. [A27]

378. U.S. Statutes at Large, Vol. 94, Part 1: 84-85. [D3]

379. Iroij Johannes Peter, Iroij Benton Abraham, and Magistrate John Abraham to President Jimmy Carter, 4 Apr 80, Document 47578, CIC. [H80]

380. "Report on the Enewetak Food and Agriculture Program, Fiscal Year 1987," Rudolph's files, Letter files, Letters-Marshall Islands-1987, EH. [D61]

381. DOE, Melelen Radiation Ilo Ailin ko Ituion Ilo Majol, 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, (Washington: DOE, 1982) [D103]; "Marshall Islands A Chronology," p. 35. [A27]

382. "Marshall Islands A Chronology," p. 35. [A27]

383. Wachholz to list. [G34]
384. W. L. Robison et al. UCRL-53066. Reassessment of the Potential Radiological Doses for Residents Resettling Enewetak Atoll, 30 Oct 80, p. 1. [H79]
385. Roger Ray to Richard T. Montoya, 25 May 84, DOE, Rudolph's files, EH. [D14]
386. U.S. Statutes at Large, Vol. 94, Part 3: 3477-3479. [D2]
387. Roger Ray to Richard W. Teare, 26 Jan 83, Brown, Roger Ray (DPO) Corres. 1983, NV [G43]; *Juda vs. U.S.*, 13 Cl. Ct. 667 (1987), pp. 667-693. [G44]
388. Harry U. Brown to W. H. Adams et al., 2 Nov 88, DOE, Rudolph's files, Letter files, Letters-Marshall Islands 1988, EH. [D76]
389. Robert L. Morgan to the Secretary et al, 27 Feb 81, Management (AD), Job 89034F, Box 4, 1100.63 Defense Programs (I), RG 434, AD. [F30]
390. "Marshall Islands A Chronology," p. 37. [A27]
391. "Marshall Islands A Chronology," p. 37. [A27]
392. N. Douglas Pewitt to Alex G. Fremling, 7 Apr 81, EP files. [H1]
393. Tommy McCraw to W. W. Burr, 27 May 81, Rudolph's files, unmarked box, unmarked folder, EH. [D124]
394. Herman E. Roser to the Secretary et al, 26 Oct 81, AD, Job 89035F, Box 2, 1100.63 Defense Programs, 1 of 2, RG 434, AD. [F31]
395. Ray to Teare, 26 Jan 83. [G43]
396. Roger Ray, "Comments of Letter: Rongelap Local Government (Senator Jeton Anjain) to RMI President Amata Kabua, Dated May 3, 1990," Rudolph's files, D-file, Marshall Islands 1990, EH. [D104]
397. BNL 51781, Medical Status of Marshallese Accidentally Exposed to 1954 Bravo Fallout Radiation: January 1980 Through December 1982, pp. 1-2. [H8]
398. W. L. Robison et al, An Updated Radiological Dose Assessment of Bikini and Eneu Islands at Bikini Atoll, UCRL 53225, 29 Jan 82, p.1. [H78]
399. "Implementation of the National Environmental Policy Act (NEPA)," Management (AD), Job 90003F, Box 3, 1100.65, Environmental Protection, Safety & Emergency Preparedness, RG 434, AD. [F26]
400. John Rudolph to Tom Cornwell and Kristine Morris, 2 Mar 82, Rudolph's files, Box 2, EIS Marshall Islands Compact Legislation Package, EH. [H2]
401. Herman Roser to the Secretary, 23 Mar 82, attached to a letter from Sen. John Glenn to Secretary James D. Watkins, 4 May 90, Brown, NV. [D122]

402. Kristine Morris to John Rudolph and Tom Cornwell, 25 Mar 82, Rudolph's files, Box 2, EH. [H3]
403. C. W. Edington to Trivelpiece, Apr 82, EP files. [H4]
404. J. W. Thiessen to A. W. Trivelpiece, 14 Apr 82, Rudolph's files, EH. [D123]
405. Tommy McCraw to Edward Vallario, 22 Jul 85, EP files. [H25]
406. Fred M. Zeder to James Kelly et al., 16 May 84, DOE, Rudolph's files, EH. [D12]
407. NVO-213, Enewetak Radiological Support Project. Final Report, Sep 82. [H5]
408. W. J. Bair, "Response to Questions Regarding the DOE 1982 Radiation Report," 7 Feb 90, Rudolph's files, Letter files, Letters-Marshall Islands 1990, EH. [D109]
409. "Proclamation 5564 of November 3, 1986," Compilation of Agreements Between the Government of the United States and the Freely Associated State of the Republic of the Marshall Islands (hereafter Compilation) (Washington: The President's Personal Representative for Micronesian Status Negotiations, 1987). [D110]
410. "Agreement Concluded Pursuant to Section 234 of the Compact of Free Association," 1 Oct 82, Compilation. [D112]
411. U.S. Statutes at Large, Vol. 96, Part 2: 1705-1709. [D4]
412. Herman E. Roser to assistant secretary, environmental protection, safety, and emergency preparedness, EP-1, 28 Oct 82, Management, Box 2, Job 90003F, 1100.63 Defense Programs (DP), RG 434, AD [H37]; William A. Vaughan to the Secretary et al, 29 Oct 82 (signed 5 Nov 82), with attachments, AD, Box 2, Job 90003F, 1100.65 Environmental Protection, Safety & Emergency Preparedness (EPS&EP), RG 434, AD. [H38]
- 413.11 Melelen Radiation Ilo Ailin ko Ituion Ilo Majol, 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) [D103]; Tommy McCraw to Edward Vallario, 22 Jul 85, EP files. [H25]
414. "Transcript of Meetings to Explain the 1978 Radiological Survey of the Marshall Islands, Majuro, M.I., Dec. 8-9, 1982," Ray's files, "Transcript of meetings to explain the 1978 radiological survey of the Marshall Islands, Majuro, M.I., Dec 8-9, 1982 [H6]; Tommy McCraw to James De Francis, 16 Dec 82, EP files. [H7]
415. "Standard Operating Procedure No. 21, Revision No. 1, Pacific Area Support Office (PASO), Bikini Atoll Support Services," DOE, Rudolph's files, D-file, Marshall Islands 1986, EH. [D42]
416. Brown to Adams et al., 2 Nov 88, Rudolph's Files, Letter files, Letters-Marshall Islands 1988, EH. [D76]

417. U.S. Cong., House, 98th Cong., 1st sess, Subcommittee on Public Lands and National Parks, The Trust Territory of the Pacific Islands, Jan 83, Committee Print No. 3. [D5]
418. "Action: Radiation Litigation Support Plan," 22 May 84, Rudolph's files, EH. [D13]
419. Herman E. Roser to the director of administration, MA-2, 11 Jan 83, AD, Box 3, Job 90003F, 1100.65 EPS&EP, RG 434, AD. [F27]
420. Roger Ray, DOE/NV deputy for Pacific Operations, to James DeFrancis, 26 Jan 83, Ray's files. [G75]
421. Maj. Gen. William W. Hoover to acting manager, Nevada Operations Office, 14 Feb 83, AD, Box 3, Job 90003F, 1100.63 Defense Programs (Bulk), RG 434, AD. [F28]
422. K. Dean Helms to the director of administration, 29 Mar 83, AD, Box 2, Job 90003F, 1100.63 DP, RG 434, AD. [F29]
423. Thomas R. Clark to Gen William W. Hoover, 14 Jul 83, Brown, Roger Ray (DPO) Corres. 1983 [H10]; Harry Brown to John Rudolph and Thomas Clark, 2 Jun 86, Rudolph's files, EH. [D37]
424. "Proclamation 5564 of November 3, 1986," Compilation. [D110]
425. "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," 25 Jun 83, Rudolph's files, Marshall Islands--Section 177 Agreement, EH. [D113]
426. DOS Press Release, "Marshall Islands Voters Approve Free Association with the United States," 15 Sep 83, Rudolph's files, EH. [D6]
427. Herman Roser to the Secretary, special assistant to the Secretary for Policy and Programming, 21 Oct 83, Rudolph's Files, EH. [D7]
428. W. D. Jackson to W. J. Stanley, 9 Nov 83, Brown, Roger Ray (DPO) Corres. 1983, NV. [H11]
429. BARC, Interim Report. Resettlement of Bikini Atoll: Feasibility and Estimated Cost of Meeting the Federal Radiation Protection Standards, 23 Nov 83, DOE, Rudolph's files, EH. [D8]
430. W. J. Stanley to Addressees, 2 Aug 85, Rudolph's files, EH. [D28]
431. NV, Marshall Islands Program Plan FY 1985-1989, 31 Jan 84, Rudolph's Files, EH. [D9]
432. Philip Helfrich to Colleagues, 10 Feb 84, Brown's files, Roger Ray (DPO) Corres. 1984, NV. [H12]

433. "Report on the Enewetak Food and Agriculture Program, Fiscal Year 1987," Rudolph's Files, Letter files, Letters-Marshall Islands-1987, EH. [D61]
434. Draft letter to Charles B. Meinhold, 1 Nov 84, Rudolph's files, EH. [D19]
435. "The People of Bikini, by and through the Bikini/Kili Council et al. v. United States of America", 1 May 84, DOE, Rudolph's files, EH. [D120]
436. "Department of Energy (DOE) Marshall Islands and Environmental Program," n.d., Rudolph's files, EH. [D10]
437. W. J. Stanley to Addressees, 15 May 84, Rudolph's files, EH. [D11]
438. Janet J. McCoy to Maj. Gen. William W. Hoover, 25 May 84, attached to Maj. Gen. William W. Hoover to Roger Ray, 5 Jun 84, Ray's files. [G76]
439. Roger Ray to Ambassador Fred M. Zeder, office for Micronesian status negotiations, 8 June 84, Ray's files. [G77]
440. Roger Ray to Amata Kabua, 20 Jul 84, Rudolph's files, Box 2, MI Program General, EH. [H15]
441. Richard T. Montoya to William Clark. 15 Jun 84, pp. 6-8, 33-35, Rudolph's files, Box 2 of 18, EH. [H13]
442. William Clark to Donald P. Hodel, 5 Jul 84, Brown, "Enyu," [sic. Actually concerns Enue Island, not Enyu.] Resettlement FY 86, General Correspondence, NV. [H14]
443. Ray to Kabua, 20 Jul 84. [H15]
444. ~~David B. Leclair to Donald White, 26 Aug 87, Rudolph's files, D-file, Marshall Islands 1987, EH. [D52]~~ 1987, EH. [D59]
445. ~~W. J. Bai to Roger Ray, 12 Sep 84, Rudolph's files, EH. [D16]~~ files, Letter-Marshall Islands-1987, EH. [D61]
446. W. J. Stanley to Addressees, 28 Aug 84, Rudolph's files, EH. [D15]
447. "Draft, Staff Comments," 21 Sep 84, Rudolph's files, Box 15 of 18, EH. [H16]
448. "Memorandum of Understanding Between the Department of Energy and the Department of Defense for the Planning and Support for Safeguard C and Conducting Nuclear Weapons Tests Outside North American Continental Limits," Brown, Safeguard C/Joint Sampler FY 88 Working Group, NV. [H17]
449. W. J. Stanley to Addressees, 28 Sep 84, Rudolph's files, EH. [D17]
450. Roger Ray to Janet McCoy, 14 Dec 84, Brown, Roger Ray (DPO) Corres. 1984, NV. [H18]
451. W. J. Stanley to Addressees, 17 Oct 84, Rudolph's files, EH. [D18]

452. Bikini Atoll Rehabilitation Committee, Report No. 1, Resettlement of Bikini Atoll: Feasibility and Estimated Cost of Meeting the Federal Radiation Protection Standards. Submitted to U.S. Congress, House and Senate Committees on Interior Appropriations, 15 Nov 84. [D119]
453. R. Dennis Bevans to James U. DeFrancis, 30 Nov 84, Rudolph's files, EH. [D20]
454. Bob Tiller to Don Ofte, undated, Rudolph's files, EH. [D21]
455. James U. DeFrancis to William W. Hoover, 18 Dec 84, Rudolph's files, Box 2 of 18, EH. [H19]
456. Ray to McCoy, 14 Dec 84. [H18]
457. "Standard Operating Procedure No. 21, Revision No. 1, Pacific Area Support Office (PASO), Bikini Atoll Support Services," Rudolph's files, D-file, Marshall Islands 1986, EH. [D42]
458. Tommy F. McCraw to Delbert F. Bunch, 20 May 87, EP files. [H42]
459. Roger Ray to John E. Rudolph, 5 Jan 85, Rudolph's files, Box 2 of 18, EH. [H20]
460. Sidney R. Yates to Donald P. Hodel, 18 Jan 85, Rudolph's files, Box 2 of 18, EH. [H21]
461. Yates to Hodel, 18 Jan 85. [H21]
462. W. J. Stanley to Addressees, 27 Apr 85, Rudolph's files, EH. [D29]
463. R. Ray to W. W. Hoover, 12 Feb 85, Rudolph's files, Box 2 of 18, EH. [H22]
464. Harry Brown to Bill Jackson, 7 Nov 85, Brown, Rongelap 1954 File 2 of 2, EH. [H81]
464. Lessard et al, BNL 51882, Thyroid Absorbed Dose for People at Rongelap, Utirik, and Sifo on March 1, 1954, Mar 85, pp. iii, xiii. [H81]
465. Bernd Franke to Hiroshi Yamamura, 3 Sep 85, Brown, NV, 1954 [H51]
465. Operations Plan Mission No. 4, FY 1985, Ebeye, Majuro, Uterik, Rongelap, Rudolph's files, EH. [D31]
466. "Statement of Jonathan M. Weisgall Legal Counsel to the People of Bikini Before the House Appropriations Committee Subcommittee on Interior," 1 May 85, Rudolph's files, EH. [D121]
467. W. J. Stanley to Addressees, 27 Apr 85, Rudolph's files, EH. [D29]
468. "Statement of the Council and People of Enewetak Before the Subcommittee on Interior House Committee on Appropriations," 1 May 85, Rudolph's files, Box 2 of 18, EH. [H23]
469. "Summary of Radiation-Related Medical Examinations," 10 May 85, Rudolph's files, EH. [D24]
470. John S. Herrington to Donald P. Hodel, 20 May 85, Rudolph's files, EH. [D25]

471. "Marshall Islands Program," 21 May 85, Rudolph's files, EH. [D26]
472. "Residents Vacate Atomic-Test Atoll," Washington Post, May 22, 1985, p. A-2 [D27]; McCraw to Vallario, 22 Jul 85. [H25]
473. SLNO to Secretary of State, 1 Jul 85, Rudolph's files, Box 2 of 18, EH. [H24]
474. Tommy McCraw to Edward J. Vallario, 22 Jul 85, EP files. [H25]
475. Tommy McCraw to Joseph Fitzgerald, 30 Apr 87, EP files. [H41]
476. W. J. Stanley to Addressees, 2 Aug 85, Rudolph's files, EH. [D28]
477. W. J. Stanley to Addressees, 5 Aug 85, Rudolph's files, EH. [D30]
478. William H. Adams and Peter Heotis, "Public Health Report No. 12," 16 Dec 85, Brown, BNL Medical FY 1986 General Correspondence, NV. [H27]
479. Tom Kijiner to Donald Hodel, 10 Dec 85, Rudolph's files, EH. [D32]
480. U.S. Statutes at Large, Vol. 99, Part 2. [D105]
481. Harry U. Brown, "Major Provisions of Interest to DOE under the Final and Approved Compact of Free Association," 13 Dec 85, Brown, Compact of Free Association FY 1985/86/87, NV. [H26]
482. A. Bryan Siebert to Dan Ofte, 23 Dec 85, Rudolph's files, EH. [D33]
483. U.S. Statutes at Large, Vol. 99, Part 2. [D105]
484. Harry Brown, "Marshall Islands Programs Briefing," Jan 86, Rudolph's files, EH. [D34]
485. W. D. Jackson to Joe Dryden, 28 Apr 89, Brown, BNL Medical 89, NV. [H31]
485. H. U. Brown to T. Clark and R. Duncan, 29 Jan 86, Rudolph's files, Box 15 of 18, EH. [H28]
486. W. J. Stanley to Distribution, 6 Feb 86, Rudolph's files, EH. [D35]
487. Bill H. Adams to Joseph H. Dryden, 9 May 86, Brown, BNL Medical FY 1986 General Correspondence, NV. [H29]
488. Harry U. Brown to Peter K. Fitzsimmons, 30 Jun 86, Rudolph's files, "Marshall Islands-Legislation," Box 15 and 18, EH. [H31]; [D37]; Thomas R. Clark to Maj. Gen. George K. Withers, DMA director, 22 May 86, and attachment, Rudolph's files, EH. [D36]
489. Harry U. Brown to John Rudolph and T. R. Clark, 2 Jun 86, Rudolph's files, "Marshall Islands Legislation," Box 15, EH. [H30]
490. William D. Jackson to Joe Dryden, July 86, Brown, Enewetak General 87, NV. [H32]



491. "Memorandum of Agreement Between the Field Command, Defense Nuclear Agency and the Department of Energy, Nevada Operations Office for Monitoring the Cactus Crater Storage Structure," 18 Jul 86, Brown, Runit, NV. [H34]
492. Harry U. Brown to John E. Rudolph, 12 Sep 86, Brown Marshall Islands Planning FY 1986-1987 Program/Policy Guidance, NV. [H35] and Harry U. Brown to William L. Robinson, 20 Oct 86, Brown, Marshall Islands Planning FY 1986-1987 Program/Policy Guidance, NV. [H36]; "Agreement between the Government of the United States and the Government of the Marshall Islands Regarding the Resettlement of Enjebi Island," 21 Jul 86, Compilation. [D114]
493. "Agreement between the Government of the United States and the Government of the Marshall Islands Regarding Use of Certain Lands on Ejit Island by Persons Displaced as a Result of the United States Nuclear Testing Program in the Marshall Islands," 21 Jul 86, Compilation. [D115]
494. "Agreement Concerning Procedures for the Implementation of United States Economic Assistance Programs and Services Provided in the Compact of Free Association between the Government of the United States and the Government of the Marshall Islands," 21 Jul 86, Compilation. [D116]
495. H&N, Conceptual Design Report: Bikini Atoll Eneu Base Facilities prepared for USDOJ/USDOE and the Bikini People, Jan 87, DOE, Rudolph's files, D-file, Marshall Islands 1987, EH. [D43]
496. W. D. Jackson to J. H. Dryden, 3 Oct 86, Brown, BNL Medical 87, NV. [H82]
497. "Briefing/Discussions with RMI," 5 Sep 86, Rudolph's files, D-file, Marshall Islands 1986, EH. [D38]
498. Edward T. Lessard, "Review of Marshall Islands Fallout Studies," 30 Sep 86, Brown, Rongelap File 5, NV. [H33]
499. William L. Robinson, Marshall Island Dose Assessment and Environmental Program FY 1987-1988-1989, Rudolph's files, Box, Marshall Islands Program Plan, EH. [D41]
500. "Agreement for Implementation of the Compact of Free Association between the Government of the United States and the Government of the Republic of the Marshall Islands, 10 Oct 86, Compilation. [D117]
501. Congressional Record-House, Rudolph's files, D-file, Marshall Islands 1986, EH. [D39]
502. "Proclamation 5564 of November 3, 1986," Compilation. [D110]
503. Harry U. Brown to T. R. Clark and D. T. Schueler, 18 Nov 86, Rudolph's files, D-file, Marshall Islands 1986, EH. [D40]
504. S. Con. Res. 171, 99th Congress, 2nd Session, Compilation [D118]; U.S. Statutes at Large, Vol. 100, Part 5; 3762-3705. [G71]

505. Harry U. Brown to Adams et al., 2 Nov 88, Rudolph's files, Letter files, Letters-Marshall Islands 1988. EH. [D76]
506. H&N, Conceptual Design Report: Bikini Atoll Eneu Base Facilities prepared for USDOJ/USDOE and the Bikini People. [D43]
507. S. R. Foley to Tom Bevill, 20 Feb 87, Rudolph's files, D-file, Marshall Islands 1987, EH. [D44]
508. Harry U. Brown to T. R. Clark and D. T. Schueler, 11 Mar 87, Brown, Marshall Islands Planning FY 1986-1987 Program/Policy Guidance, NV. [H39]
509. Peter K. Fitzsimmons to Harry U. Brown, 30 Mar 87, Brown, Bioassay-Dosimetry Review 87, NV. [H40]
510. F. Berndt Schine to John Rudolph, 4 Jun 87, Rudolph's files, D-file, Marshall Islands 1987, EH. [D47]
511. Tommy F. McCraw to Delbert F. Bunch, 20 May 87, p. 1, EP files. [H42]
512. William D. Jackson to J. H. Dryden, 17 Jun 87, Brown, BNL Medical 87, NV. [H43]
513. Tommy McCraw to Joseph Fitzgerald, 30 Apr 87, EP files. [H41]
514. Harry U. Brown to John E. Rudolph, 15 May 87, Rudolph's files, Letter files, Letters-Marshall Islands 1987, EH. [D46]
515. Tommy F. McCraw to Delbert F. Bunch, 20 May 87, p. 19, EP files. [H42]
516. Brown to Rudolph, 10 Jun 87, Rudolph's files, D-file, Marshall Islands 1987, EH. [D48]
517. J. H. Dryden to Addressees, 2 Jul 87, Rudolph's files, Letter files, Letters-Marshall Islands-1987, EH. [D49]
518. "Agenda: Interagency Working Group on Freely Associated State Affairs, Meeting, Thursday, July 16, 1987," Rudolph's files, Letter files, Letters-Marshall Islands-1987, EH. [D50]
519. Nick C. Aquilina to Richard T. Montoya, 24 Jul 87, Rudolph's files, Letter files, Letters-Marshall Islands-1987, EH. [D51]
520. P&D Technologies, Making Rongelap Habitable: Proposed Workplan for a Phase 2 Comprehensive Study, 12 Apr 89, Tom Bell's files (hereafter Bell's files), EH. [D108]
521. Harry U. Brown to David R. Anderson, 19 Feb 88, Brown, Runit, NV. [H53]
522. Thomas E. Hamilton et al., "Thyroid Neoplasia in Marshall Islanders Exposed to Nuclear Fallout," JAMA 258, (7 Aug 87): 629-636. [H44]
523. Peter N. Oliver to Harry U. Brown, 29 Aug 87, Brown, Rongelap 87, NV. [H45]

524. J. H. Dryden to Addressees, 27 Aug 87, Rudolph's files, Letter files, Letters-Marshall Islands-1987, EH. [D53]
525. Harry U. Brown to R. M. Nelson et al., 27 Aug 87, Rudolph's files, Letter files, Letters-Marshall Islands-1987, EH. [D54]
526. William H. Adams to Joseph Dryden, 27 Oct 87, Brown, BNL Medical 87, NV. [H47]
527. Peter N. Oliver to Harry U. Brown, 2 Oct 87, Brown, Enewetak General 87, NV. [H46]
528. Harry U. Brown to J. E. Rudolph and J. H. Dryden, 1 Oct 87, Rudolph's files, Letter files, Letters-Marshall Islands-1987, EH. [D45]
529. J. H. Dryden to Addressees, 5 Oct 87, Rudolph's files, Letter files, Letters-Marshall Islands-1987, EH. [D55]
530. J. H. Dryden to Addressees, 12 Oct 87, Rudolph's files, Letter files, Letters-Marshall Islands-1987, EH. [D56]
531. Harry U. Brown, Minutes of Marshall Islands Planning Group Meeting Held October 14, 1987, 23 Oct 87, Brown, Rongelap 87, NV. [D57]
532. "Memorandum of Understanding between the U.S. Department of Energy and 177 Health Plan," Rudolph's files, Letter files, Letters-Marshall Islands-1987, EH. [D58]
533. Harry U. Brown, Minutes of Marshall Islands Planning Group Meeting Held October 14, 1987, 23 Oct 87, Brown, Rongelap 87, NV. [D57]
534. Juda vs. U.S., 13 Cl. Ct. 667 (1987). [G44]
535. Harry U. Brown to Jonathan Weisgall, 16 Nov 87, Rudolph's files, Letter files, Letters-Marshall Islands-1987, EH. [D59]
536. Harry U. Brown to Howard Hills, 1 Dec 87, Rudolph's files, Letter files, Letters-Marshall Islands-1987, EH. [D60]
537. Charles B. Meinhold to Members of the Marshall Islands Radiation Safety Review Committee, 5 Mar 90, Attachment 12, Brown, NV. [H76]
538. Harry U. Brown to Joseph Dryden and Oscar de Brum, 15 Jan 88, Rudolph's files, D-file, Marshall Islands 1988, EH. [D111]
539. Nick C. Aquilina to Kittie Baier, 5 Feb 88, Brown, Bikini 88, NV. [H51]
540. Nick C. Aquilina to J. E. Rudolph et al., 4 Apr 88, Rudolph's files, Letter files, Letters-Marshall Islands-1988, EH. [D64]
541. "Memorandum of Understanding Between the U.S. Department of Energy and the 177 Health Plan," Brown, Medical 88, NV. [H50]

542. James A. McClure and J. Bennett Johnston to U.S. President, 26 Jan 88, Brown, Bikini 88, NV. [H59]
543. Harry U. Brown to J. E. Rudolph et al., 16 Feb 88, Brown, Rongelap 87, NV. [H52]
544. "Operations Plan 88-4, Mission No. 4, FY 1988," Rudolph's files, Letter files, Letters-Marshall Islands-1988, EH. [D63]
545. Edward T. Lessard to David L. Wheeler, 11 Mar 88, Brown, Bioassay-Dosimetry Review 87, NV. [H54]
546. H&N, Preliminary Plan for the Rehabilitation and Resettlement of Rongelap Atoll, Apr 88, Rudolph's files, D-file, Marshall Islands 1989, EH. [D65]
547. Harry U. Brown to Oscar de Brum and Jonathan M. Weisgall, 15 Apr 88, Rudolph's files, D-file, Marshall Islands 1988, EH. [D66]
548. Rongelap Reassessment Project, "Preliminary Report, Rongelap Reassessment Project," 20 Apr 88, Rudolph's files, D-file, Marshall Islands 1988, EH. [D67]
549. William H. Adams to Henry Kohn, 28 Apr 88, Rudolph's files, EH. [D68]
550. William H. Adams to Joseph Dryden, 29 Apr 88, Brown, Medical 88, NV. [H55]
551. Dryden to Addressees, 1 Jul 88, Rudolph's files, Letter files, Letters-Marshall Islands-1988, EH. [D71]
552. BARC, Summary Report (Report No. 6), 22 July 88, Rudolph's files, D-file, Marshall Islands 1988, EH. [D72]
553. Harry Brown to Bill Jackson, 7 Nov 88, Brown, Rongelap 1988 File 2 89, NV. [H57]
554. Bernd Franke to Hiroshi Yamamura, 14 Sep 88, Brown, NV. [H56]
555. Brown to Kohn et al., 21 Oct 88, Rudolph's files, Letter files, Letters-Marshall Islands-1988, EH. [D74]
556. Troy E. Wade II to Bevill, 7 Apr 89, Executive Secretariat Collection. [ES1]
557. P&D Technologies, Making Rongelap Habitable: Proposed Workplan for a Phase 2 Comprehensive Study, Bell's files, EH. [D108]
558. Oscar de Brum to John Rudolph, 7 Oct 88, Rudolph's files, Letter files, Letters-Marshall Islands-1988, EH. [D73]
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]

561. Harry U. Brown to Adams et al., 2 Nov 88, Rudolph's files, Letter files, Letters-Marshall Islands 1988, EH. [D76]
562. "The Department of Energy Marshall Islands Medical Program, Fiscal Year 1988-1989 Report," 1 Dec 88, Rudolph's files, D-file, Marshall Islands 1988, EH. [D77]
563. People of Enewetak v. U.S., 864 Federal Reporter, 2d Series, pp. 134-137. [G45]
564. William H. Adams et al., BNL-52192, Medical Status of Marshallese Accidently Exposed to 1954 Bravo Fallout Radiation: January 1985 through December 1987, Ray's files. [H49]
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 Bruin 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]
574. Roger Ray, "Enjebi Information Summary," Apr 89, with attached "Author's Note," Ray's Files. [H74]
575. Troy E. Wade II to Tom Bevill, 7 Apr 89, Brown, BNL Medical 89, NV. [H61]
576. P&D Technologies, Making Rongelap Habitable: Proposed Workplan for a Phase 2 Comprehensive Study, 12 Apr 89, Bell's files, EH. [D108]
577. David L. Wheeler to Harry U. Brown, 1 May 89, Brown, Rongelap File 5, NV. [H64]
578. Ron de Lugo to Amata Kabua, 2 May 89, Rudolph's files, Letter Files, Letters-Marshall Islands-1989, EH. [D80]

579. David L. Wheeler to Harry U. Brown, 7 Jun 89, Brown, NV. [H66]
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]
583. Casper Sun to Whom It May Concern, 15 Jul 89, Brown, Rongelap 7 89, NV. [H68]; Charles B. Meinhold to Members of the Marshall Islands Radiation Safety Review Committee, 5 Mar 90, Enclosure 4, Brown, NV. [H76]
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]
586. William L. Robison et al., "Comments on the Statements by Bernd Franke," 30 Aug 89, DOE, Rudolph Files, EH. [D83]
587. Robison et al., "Comments on the Statements by Bernd Franke," 30 Aug 89. [D83]
588. Harry U. Brown to Oscar de Brum, 1 Sep 89, DOE, Rudolph's files, D-file, Marshall Islands 1989, EH. [D84]
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]
591. William L. Robison to Harry U. Brown, 18 Oct 89, Brown, NV. [H71]
592. Ron de Lugo to the Hon. James D. Watkins, 23 Oct 89, DOE Executive Secretariat Collection. [ES6]
593. Transcript of statement of John L. Meinhardt, at the Oversight Hearing on Rongelap, pursuant to P. L. 99-239, before the House Subcommittee on Insular and International Affairs, 16 Nov 89, pp. 79-83, EH [H85]; Ron de Lugo to the Hon. James D. Watkins, 21 Nov 89, Rudolph's files, Letter files, Letters - Marshall Islands 1989, EH [D87]; "House Committee on Interior and Insular Affairs, Subcommittee on Insular and International Affairs, Statement by John E. Rudolph, Defense Programs, United States Department of Energy, November 16, 1989," (hereafter "Statement by John Rudolph.") [H72]; "Statement of Senator Jeton Anjain on Behalf of the Rongelap Atoll Local Government before the Secretarial Panel for the Evaluation of Epidemiologic

Research Activities for the Department of Energy," 28 Dec 89, DOE, Rudolph's files, Letter files, Letters-Marshall Islands-1989, EH. [D90]

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]

596. Ron de Lugo to James D. Watkins, 21 Nov 89, Rudolph's files, Letter files, Letters-Marshall Islands 1989, EH. [D87]

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]

599. "Informal DOE Agreement No. 90DIB003," 15 Dec 89, Brown, Enewetak, NV. [H73]

600. "Statement of Senator Jeton Anjain on Behalf of the Rongelap Atoll Local Government before the Secretarial Panel for the Evaluation of Epidemiologic Research Activities for the Department of Energy," 28 Dec 89, Rudolph's files, Letter files, Letters-Marshall Islands-1989, EH. [D90]

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]

608. John C. Tuck to the Secretary [James D. Watkins,] n.d., Rudolph's files, Letter files, Letters-Marshall Islands 1990, EH. [D95]

609. J. P. Dickey to Gerald Watson, 24 Jan 90, Brown, Runit, NV. [G49]

610. W. John Tipton to Harry U. Brown, 2 Feb 90, Brown, Enewetak, NV. [G50]

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]
613. Roscoe M. Hall to Walter Kato, 23 Apr 90, Brown, NV. [G52]
614. Secretary James Watkins to Ron de Lugo, 8 Jun 90, Rudolph's files, Letter files, Letters-Marshall Islands 1990, EH. [D100]
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]
629. Guerra to Brown, 2 Jul 90. [G59]
630. Harry U. Brown to W.H. Adams, et al., 17 Aug 90, Brown, MI General, NV. [G61]

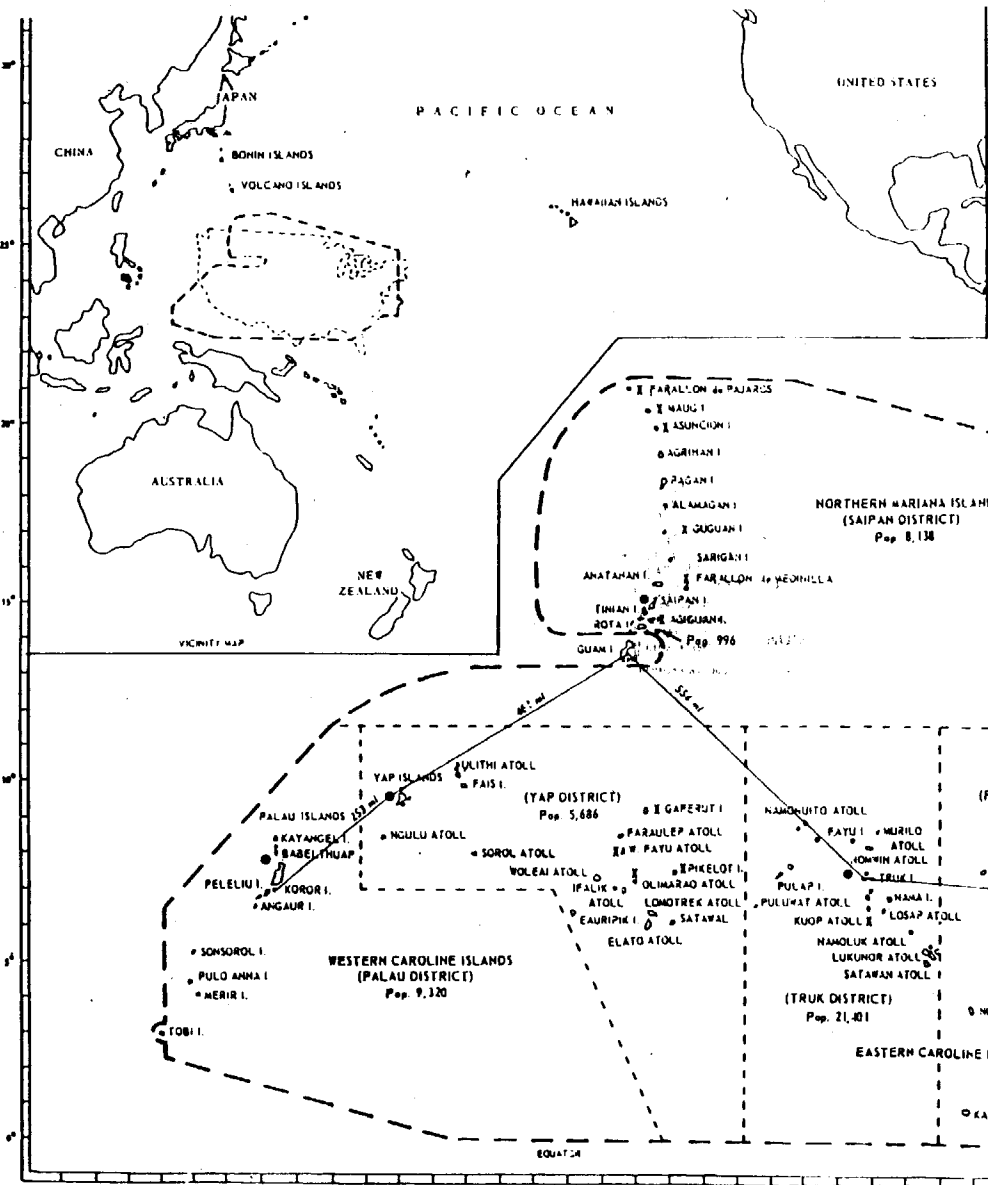


- 631. J. H. Dryden to Addressees, 6 Aug 90, Rudolph's files, Letter files, Letters-Marshall Islands 1990, EH. [D101]
- 632. McDonald E. Wrenn to David Wheeler, 27 Aug 90, Brown, NV. [G62]
- 633. William D. Jackson to J.H. Dryden, 19 Oct 90, Brown, BNL Medical (91), NV. [G63]
- 634. Dryden to Brown, 10 Sep 90. [G60]
- 635. "Memorandum of Agreement Between the U.S. Department of the Interior and the Kili/Bikini/Ejit Local Government Council for the Rehabilitation and Resettlement of Bikini Atoll," 5 Oct 90, Brown, Bikini (91), NV. [G11]
- 636. Stella Guerra to J.H. Dryden, 25 Oct 90, Brown, Enewetak (91), NV. [G28]
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187,500 SQUARE MILES OF LAND AREA  
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RONGFLAP  
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ERIKUB

MALOELAP ATOLL

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JABWOT

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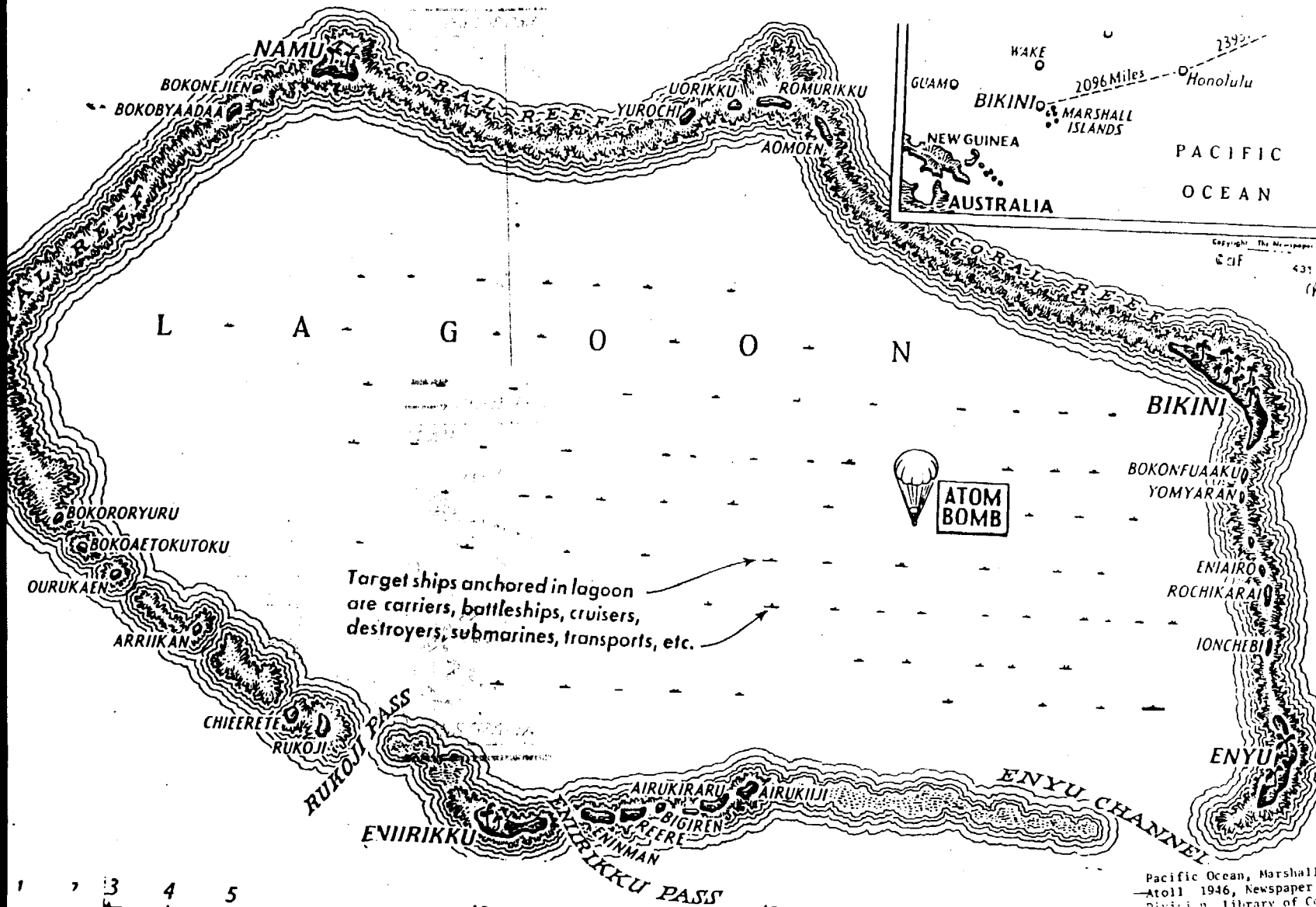
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Pacific Ocean, Marshall Islands, Bikini Atoll 1946, Newspaper PM G & M  
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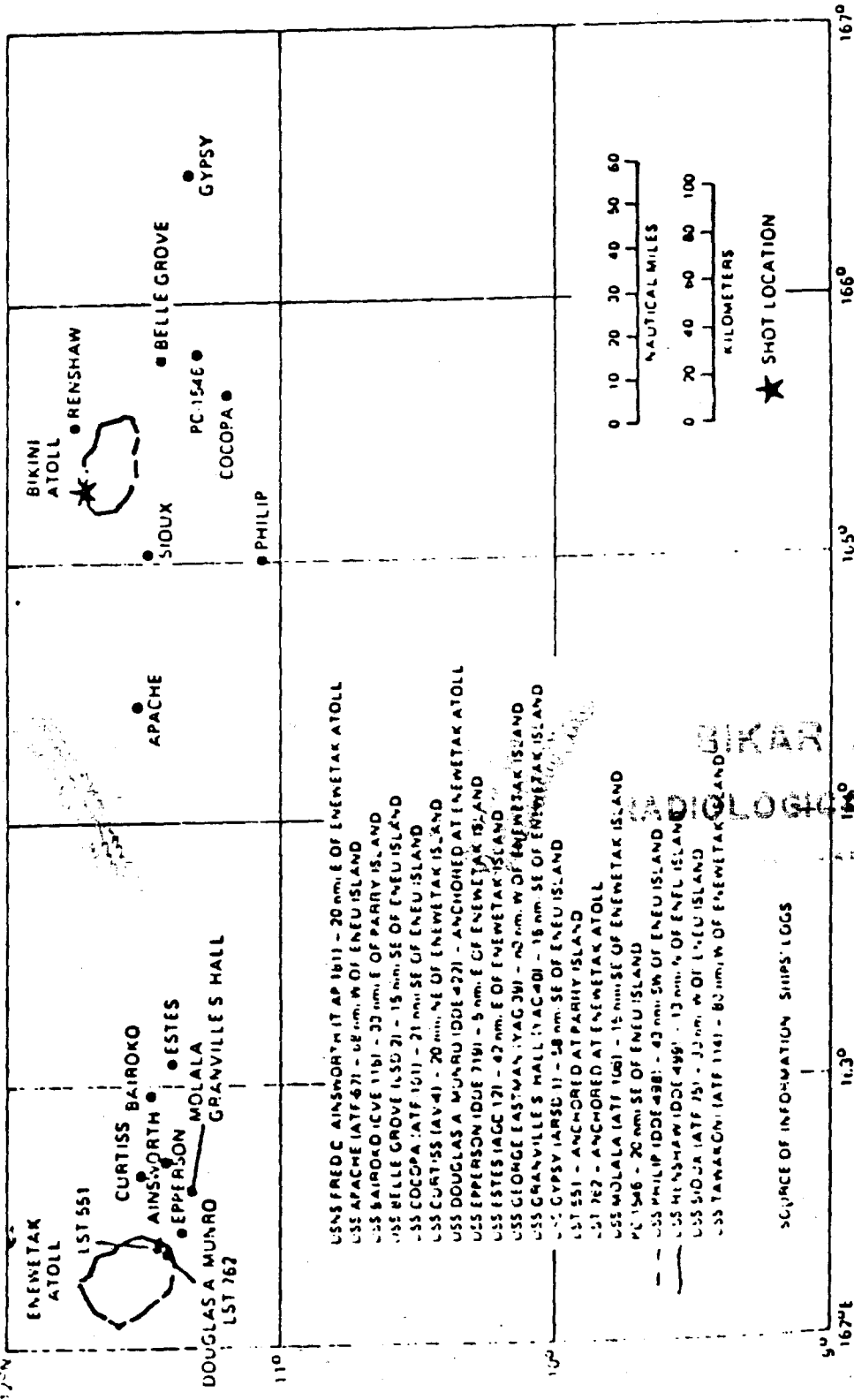
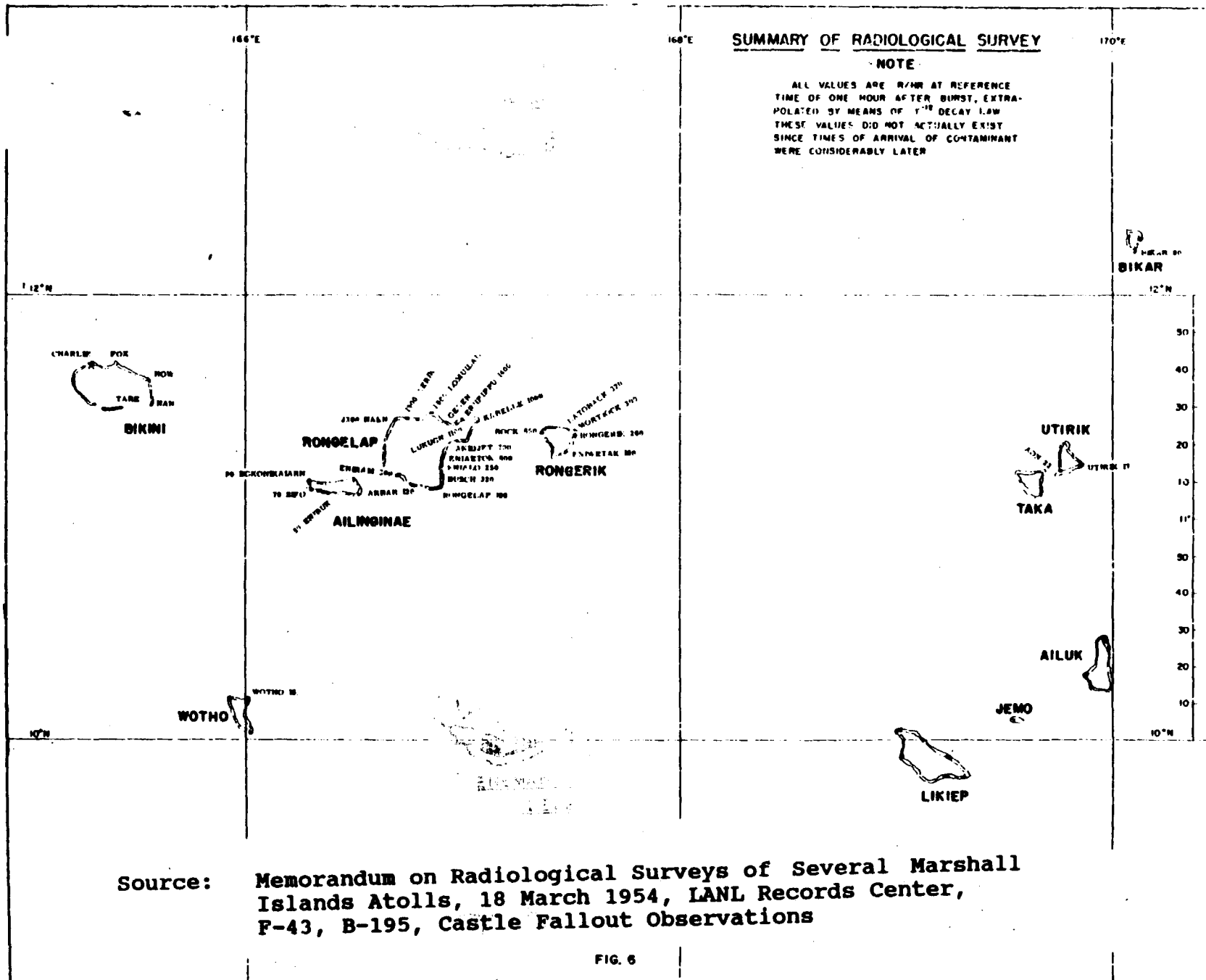


Figure 65. Ship positions on 2 March, 24 hours after CASTLE, BRAVO.

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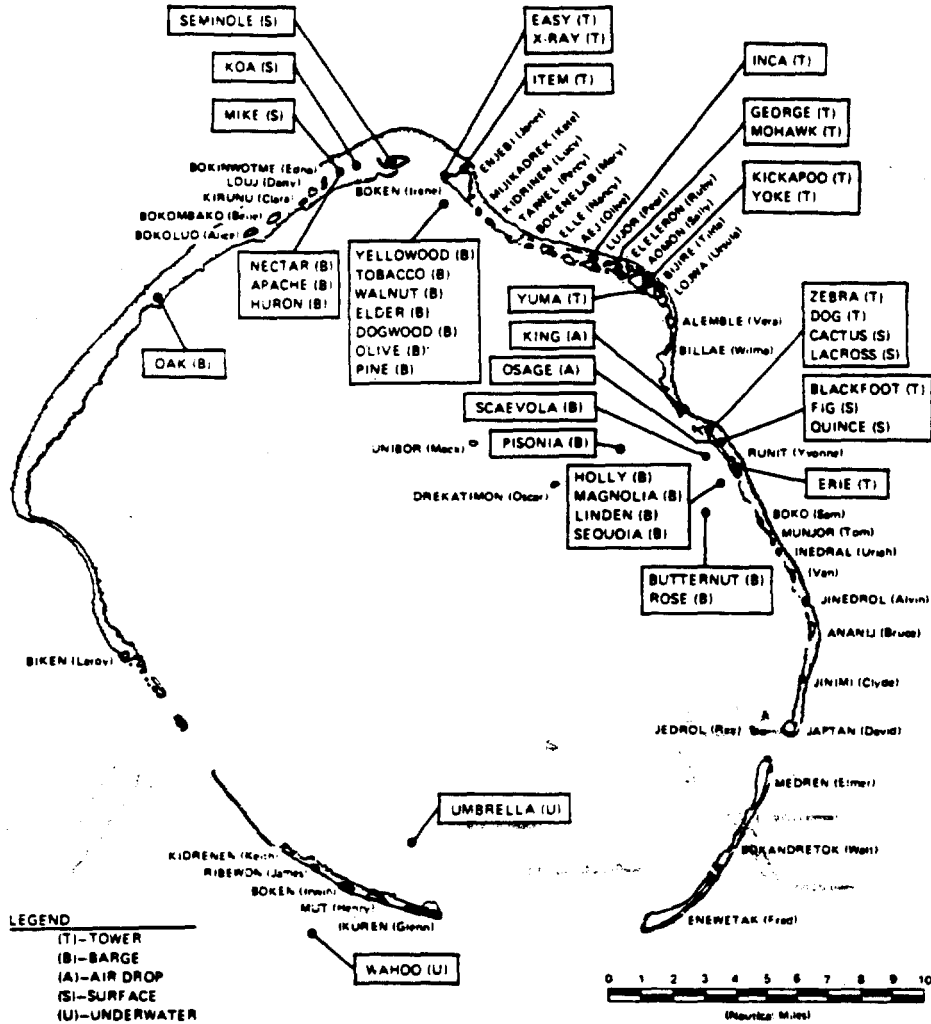
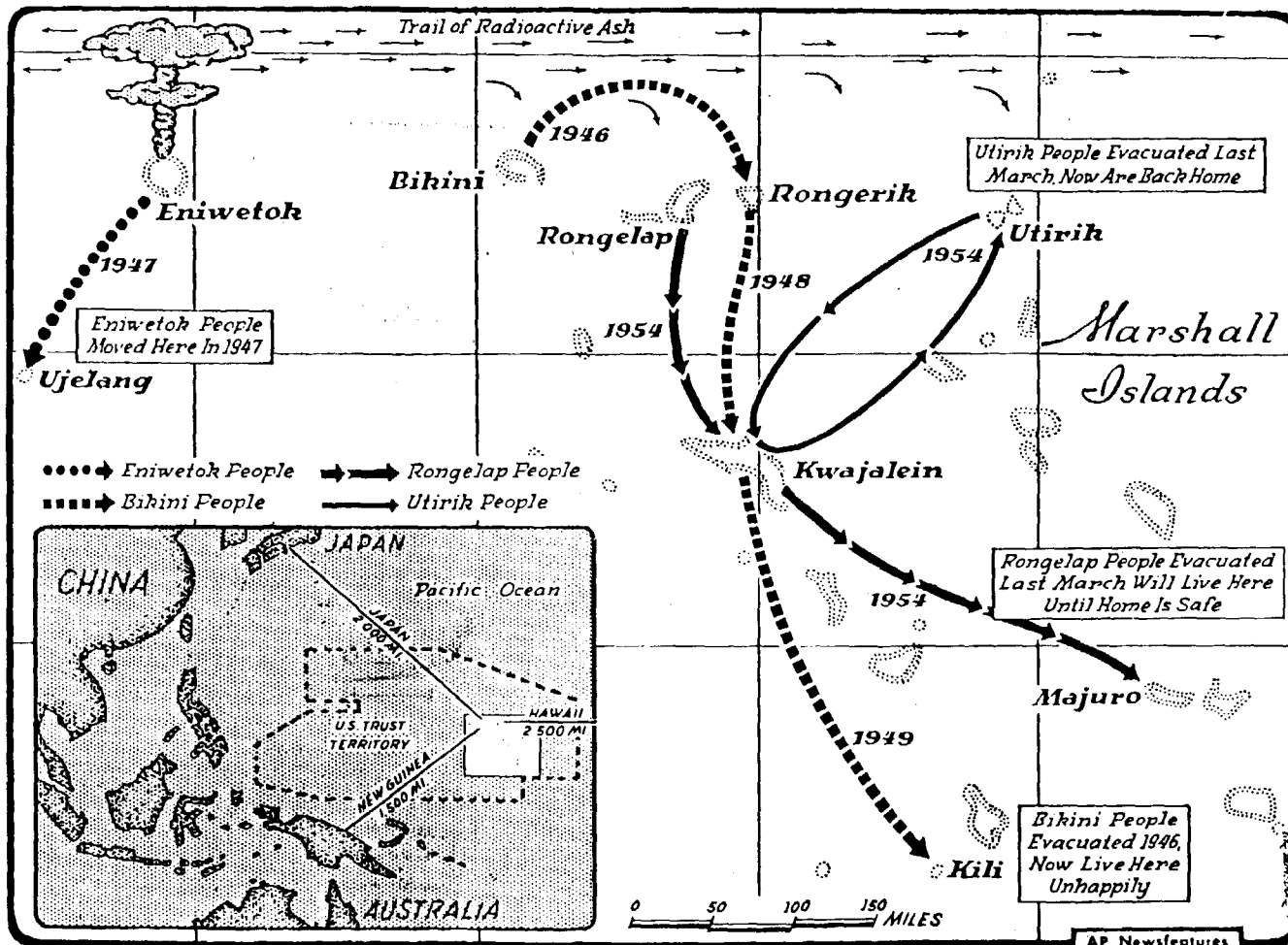


FIGURE 1-53. NUCLEAR DETONATION SITES ON ENEWETAK ATOLL.

Source: Defense Nuclear Agency, The Radiological Cleanup of Enewetak Atoll, 1981.

# BACKGROUND MAP

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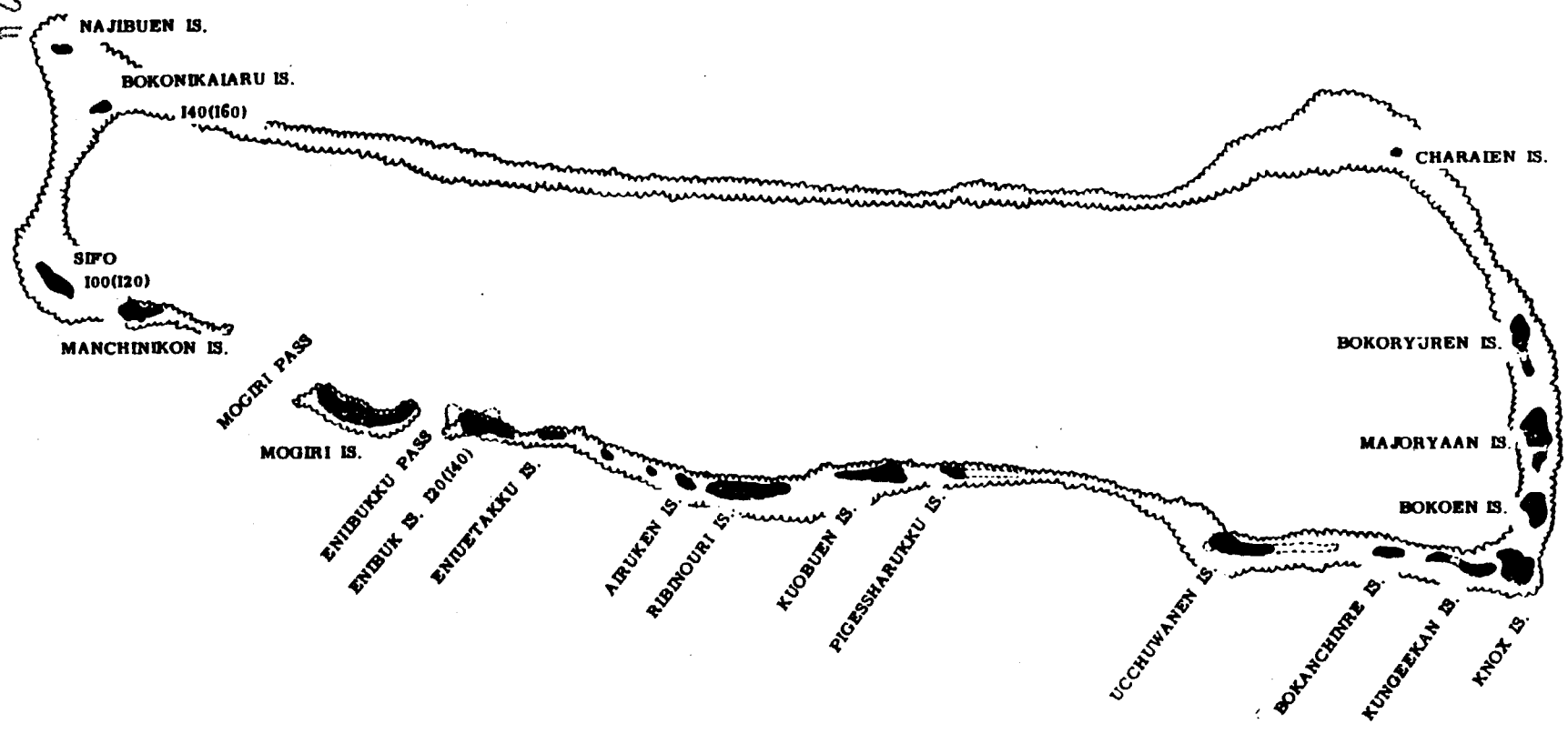
5004524

# 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

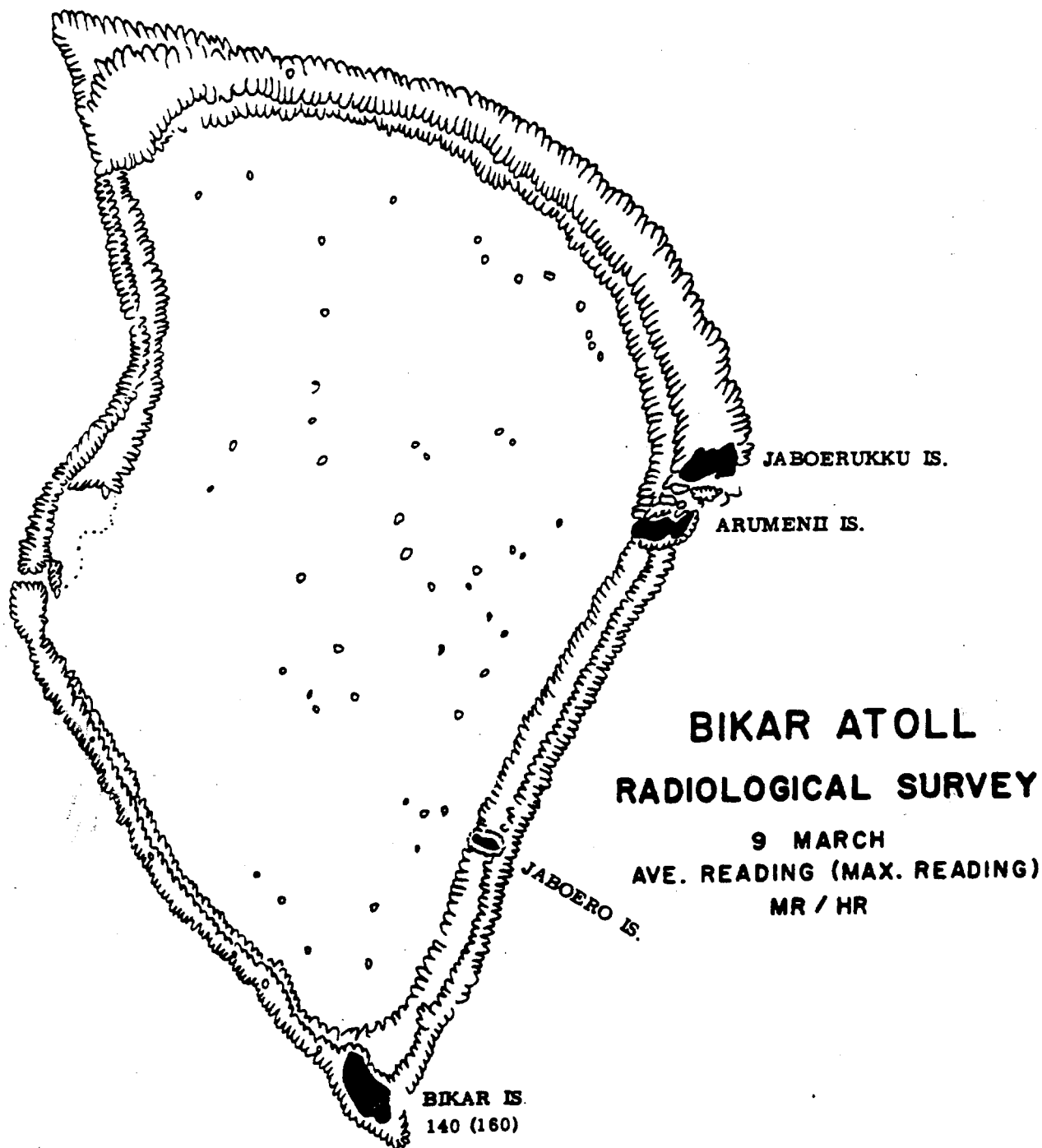


FIG. 3

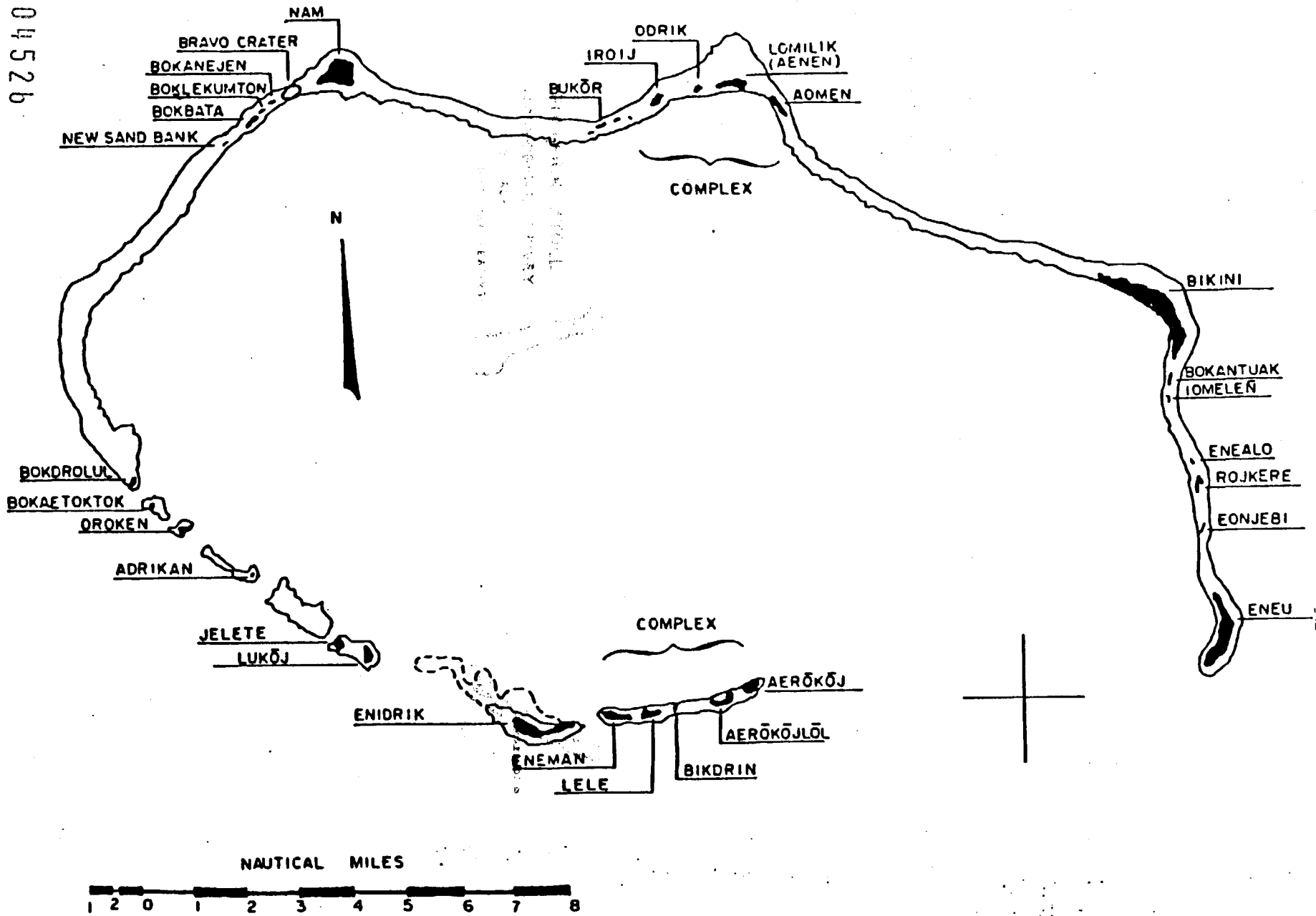
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Source: Memorandum on Radiological Surveys of Several Marshall Islands Atolls, 18 March 1954, LANL Records Center, F-43, B-195, Castle Fallout Observations

100-10001  
10015, 18  
10015, 18  
10015, 18

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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 1. BIKINI ATOLL

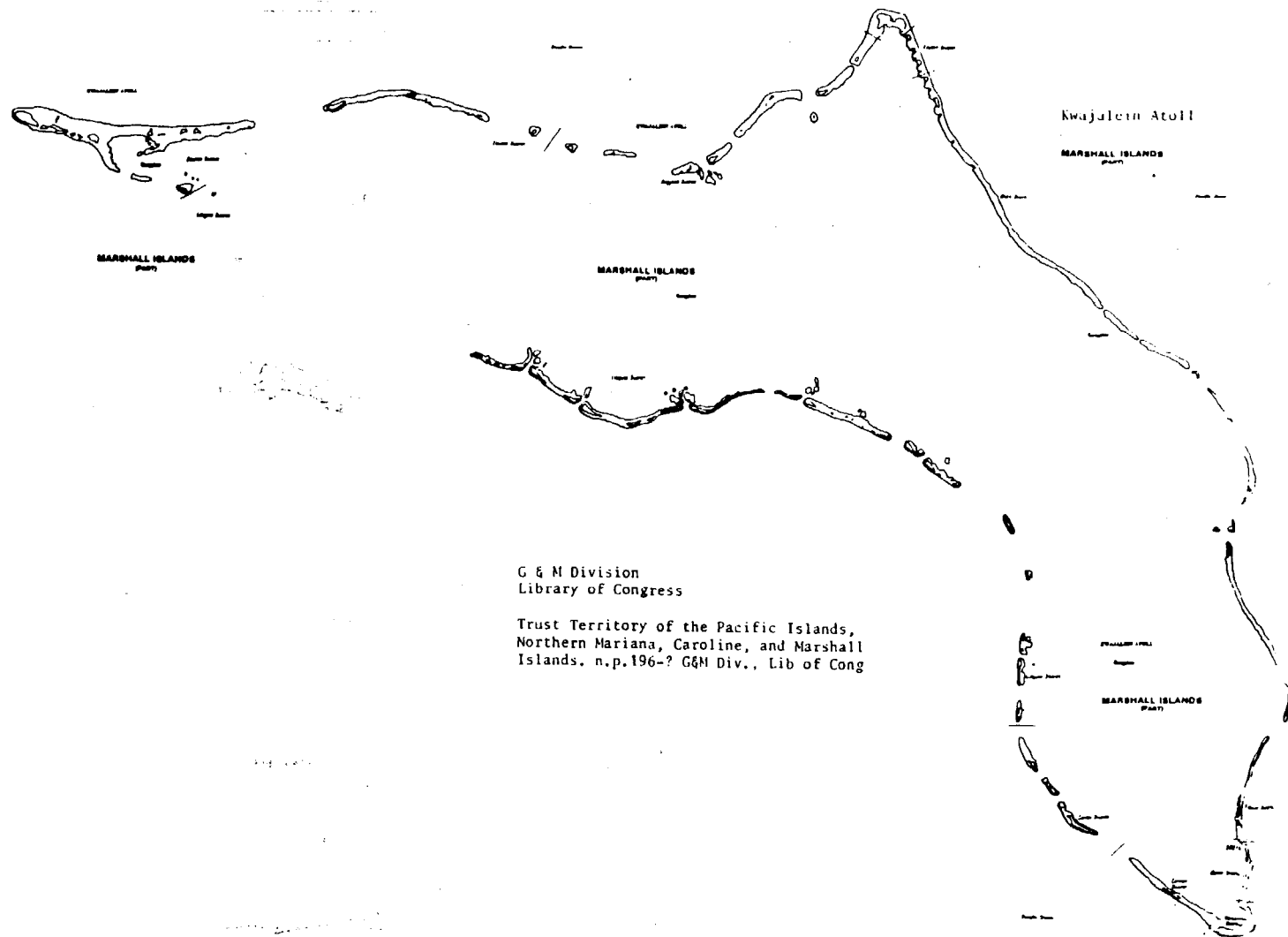
Map No. 12







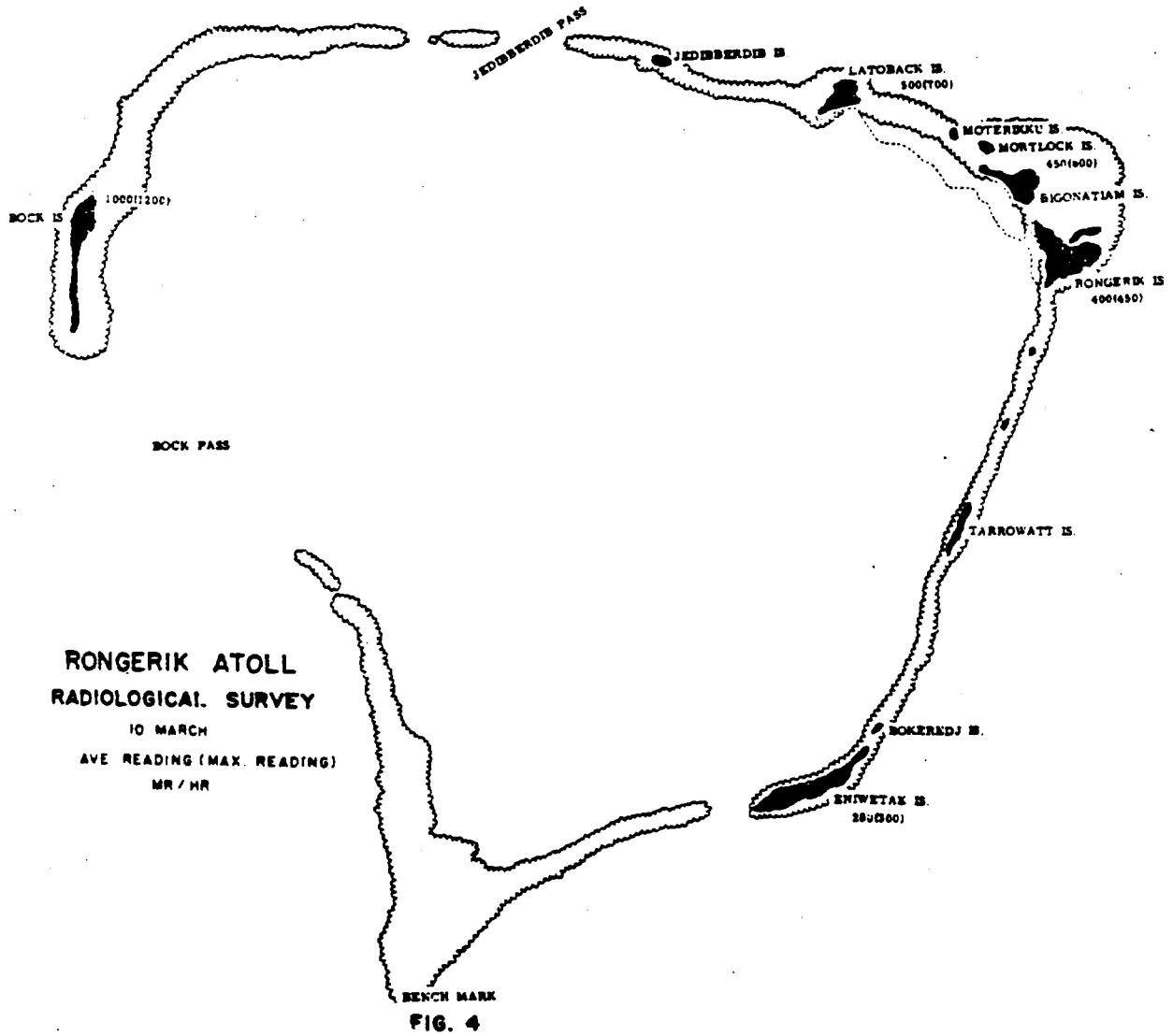
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Source: Memorandum on Radiological Surveys of Several Marshall Islands Atolls, 18 March 1954, LANL Records Center, F-43, B-195, Castle Fallout Observations

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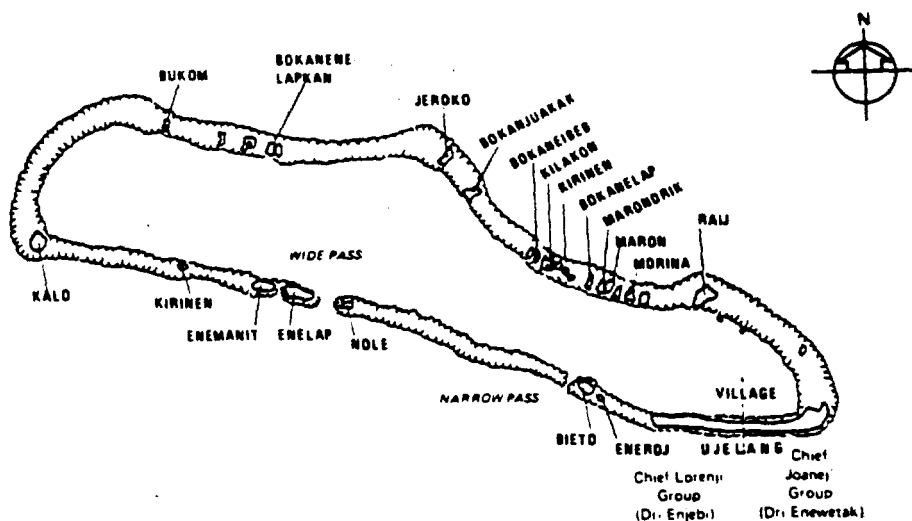


FIGURE 1-35. UJELANG ATOLL SHOWING RESIDENCE ISLANDS.

Source: Defense Nuclear Agency, The Radiological Cleanup of Enewetak Atoll, 1981.

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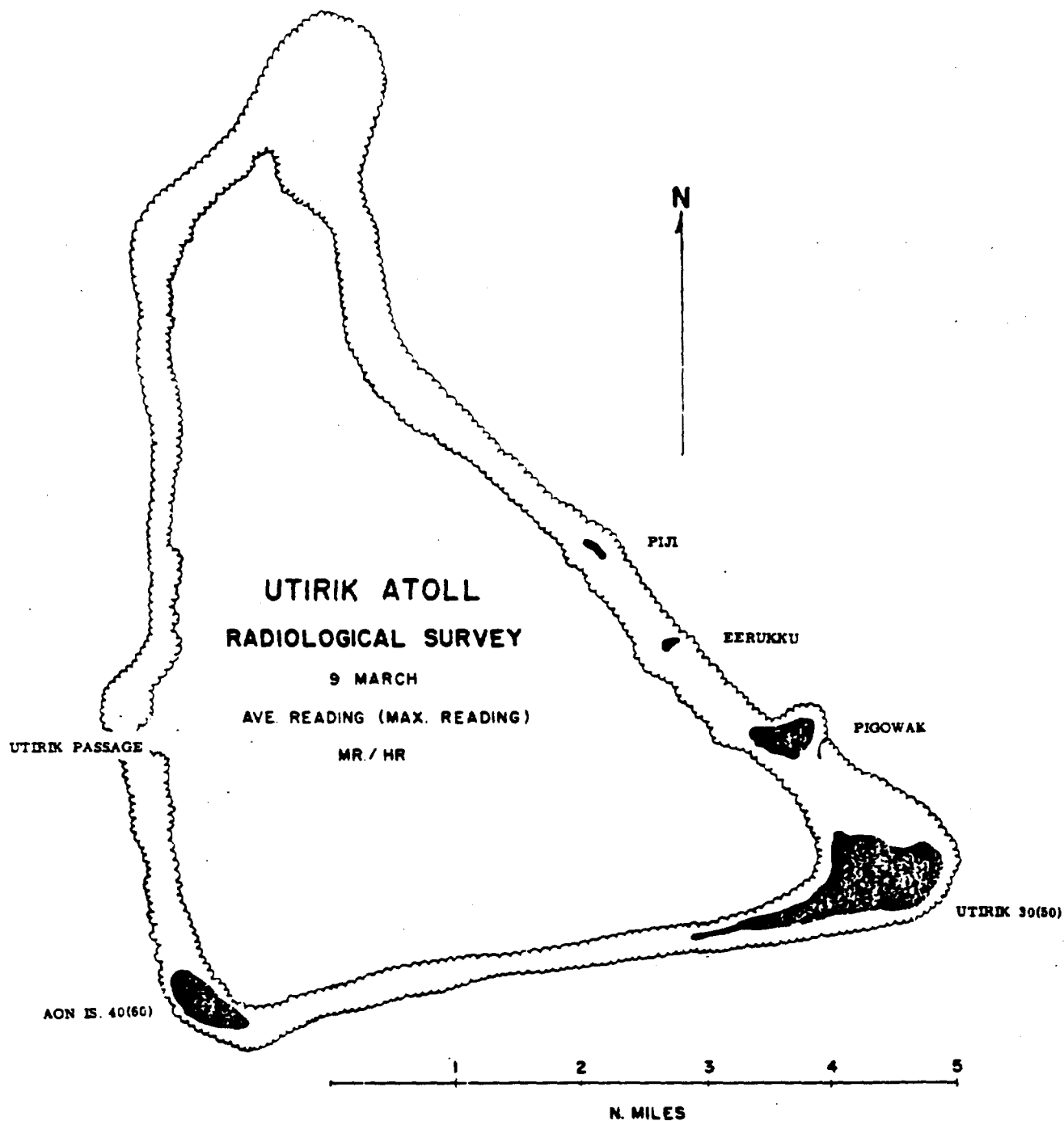


FIG. 2

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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