Radiological Picture in the Marshall Islands Today

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March 1st Bikini Day Rally
K=1 Project in the Marshall Islands
K=1 Project in the Marshall Islands

Paper 1:

Background gamma radiation and soil activity measurements in the northern Marshall Islands

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Maps of 9 islands in the 4 atolls in the northern Marshall Islands, including 8 interpolated maps.

Mean radioisotope activity concentrations (Bq/kg) in the soil for 20 samples with the highest concentrations from different atolls (Enjebi and Runit islands on Enewetak Atoll, Bikini Island on Bikini Atoll, and Naen Island on Rongelap Atoll).

Runit Dome

The Asahi Shimbun/Getty Images
K=1 Project in the Marshall Islands

In situ measurement of cesium-137 contamination in fruits from the northern Marshall Islands

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Spectra from single fruits

Cesium-137

K-40

661 keV

1461 keV

Bikini

Utirik

TP-BB-1705251148-K1-B

TF-UU-1706011002-K1-B
### Standards for $^{137}\text{Cs}$ in food

**Table 1.**
International standards by country and organization, including specified food types, for $^{137}\text{Cs}$ contamination levels in units of becquerels per kilogram

<table>
<thead>
<tr>
<th>Food</th>
<th>IPPNW, 1996</th>
<th>Belarus, current</th>
<th>Russia, current</th>
<th>Ukraine, current</th>
<th>Japan, current</th>
<th>European Union</th>
<th>1994 Codex</th>
<th>IAEA</th>
<th>FDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant food</td>
<td>8</td>
<td>37</td>
<td>40–60</td>
<td>40</td>
<td>50</td>
<td>370</td>
<td>1,000</td>
<td>1,000</td>
<td>1,200</td>
</tr>
<tr>
<td>Noninfant food</td>
<td>16</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>100</td>
<td>600</td>
<td>1,000</td>
<td>1,000</td>
<td>1,200</td>
</tr>
<tr>
<td>Milk</td>
<td>16</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>50</td>
<td>370</td>
<td>1,000</td>
<td>1,000</td>
<td>1,200</td>
</tr>
<tr>
<td>Fruit</td>
<td>16</td>
<td>40–100</td>
<td>40–120</td>
<td>40–70</td>
<td>100</td>
<td>600</td>
<td>1,000</td>
<td>1,000</td>
<td>1,200</td>
</tr>
<tr>
<td>Berries</td>
<td>16</td>
<td>185–370</td>
<td>160–500</td>
<td>500</td>
<td>100</td>
<td>600</td>
<td>1,000</td>
<td>1,000</td>
<td>1,200</td>
</tr>
<tr>
<td>Mushroom</td>
<td>16</td>
<td>2,500</td>
<td>2500</td>
<td>2500</td>
<td>100</td>
<td>600</td>
<td>1,000</td>
<td>1,000</td>
<td>1,200</td>
</tr>
<tr>
<td>Bread, cereal</td>
<td>16</td>
<td>40</td>
<td>40–60</td>
<td>20–50</td>
<td>100</td>
<td>600</td>
<td>1,000</td>
<td>1,000</td>
<td>1,200</td>
</tr>
</tbody>
</table>
Standards for $^{137}\text{Cs}$ in food

$^{137}\text{Cs} \text{ (Bq/Kg)}$

- 0-40
- 40-100
- 100-600
- 600-1200
- >1200

*Homeland security colors*
Location of measured fruits on 4 atolls in the northern Marshall Islands.
Radiation levels of 5 different radionuclides in the top 25 cm of surface sediment of the Bravo crater.

Emlyn W. Hughes et al. PNAS 2019;116:31:15420-15424
MEMORANDUM FOR: Chief of Staff, Task Group 7.4, Provisional

SUBJECT: Report of Conference

LOCATION: Technical Library B-2

1. PURPOSE: On 20 February 1954, General Groves, Doctor Schrader and Lt Colonel Crosby attended a positioning meeting for the purpose of determining the final positions of all aircraft participating in Shot BRAVO.


3. DISCUSSION:
   a. It was decided that aircraft would be positioned on the basis of a twenty-megaton yield with the exception of the two (2) effects aircraft which will be positioned on the basis of a twelve-megaton yield.

   b. The latest information from Los Alamos Scientific Laboratory indicates that BRAVO will have a maximum possible yield of #20 megatons with a probable expected yield of #12 megatons.

   c. The final positioning for the B-36G aircraft is 50,000 feet horizontal range and for the B-47, 48,000 feet horizontal range.

   d. The second BRAVO aircraft is in a suitable position at shock arrival, and therefore will accomplish radar scope photography until 15 minutes, at which time he will turn tail aspect to Ground Zero. HANDTINE THREE, the furthest out of the BRAVO aircraft will take over the scope photography up to 15 minutes, unless he is forced to abort the last portion of this mission because of cloud growth.

4. ACTION REQUIRED: Incorporate the above decisions in Operations Order 2-54.

   JAMES E. CROSBY, JR.
   Lt Colonel, USAF
   Chief, Technical Projects

courtesy of Bill Graham and Giff Johnson
Righting a historical wrong

Learning from history – about the danger of nuclear weapons, but also about use of new technologies
The US Should Apologize to the Marshall Islands for Nuclear Tests

The United States tested 67 nuclear weapons from 1946 to 1958 in what is now the Republic of the Marshall Islands.

By Ivana Nikolić-Hughes, Glenn Alcalay, and Hart Rapaport
April 30, 2021

With the Able nuclear test on July 1, 1946, the United States fired the opening salvo in one of the worst, and least-known, tragedies in our nation’s history. Seventy-five years later, it’s time for the Biden administration to break with the past and issue a presidential apology to victims of nuclear testing in the Marshall Islands. This action promises to address past injustices, help restore America’s moral leadership on the world stage, and foreclose the chance for similar calamities.

The United States tested 67 nuclear weapons from 1946 to 1958 in what is now the Republic of the Marshall Islands (RMI), a nation of 29 atolls located nearly halfway between Hawaii and...