

POOR QUALITY ORIGINAL

400110

Mr. Mr. . . .
Division Division
Orion Energy, Thermodynamics

Inc., 1954

RECORDED BY AIR FORCE STAFF AND STATIONED AT THE NUCLEAR TEST SITE

As referred to in a previous memorandum, the best estimates of gamma doses
are as follows:

on-base natives	150 r
Alin-ahne natives	17 r
(Transient from on-base)	
tirik	15 r
air carrier personnel on niwatak island of longerik, toll	10 - 10 (except 3 new personnel with 58 r)

All available data were used in arriving at these estimates. These data
are reported in an annex to this memorandum. Not included in the above
estimates are the contributions of soft emitters (below 10 rev) nor betas.
These undoubtedly contributed significantly to significant doses.

Known uncertainties in arriving at an estimate are roughly well
known, new will rear repeating here to indicate the difficulty of
computing the whole body dose.

1. Decay exponents have been reported ranging from -0.9 to -1.3+. What is desired here is the decay exponent for the time from fallout to the time of evacuation. This is not known with certainty and therefore -1.2 has been assumed.

2. Pu^{239} contamination. If a single dose rate reading is made at the peak of the relative Pu^{239} activity and then an integration made according to -1.2, a serious miscalculation might be introduced. Likewise ignoring the radiation dose from Pu^{239} would not be desirable. The above whole body estimates are made taking the Pu^{239} contamination into account, since the amount produced has been estimated for this device.

3. Location of personnel. Dose rate readings vary by almost a factor of two for different localities where the natives live. How long they were in the house when they remained was not determined with certainty. The dose rate reading in the sleeping barracks of the air carrier personnel was only about 1/3 as fast outside; the dose rate inside the active huts was almost as fast as outside. The natives slept on the ground or on mats that were almost as hot as outside the hut. In this horizontal position radioactive dust would have delivered

CONFIDENTIAL

John W. Bugher

- 1 -

June , 1954

4. Sky shine. The phenomena of sky shine with the passage of the cloud was documented at St. George, Utah in the spring of 1953. The gamma dose from the sky shine might have been appreciable when one considers the relatively heavy fallout. This factor is extremely difficult to assess.

5. Dose rate readings were made by different individuals, at different times, at different locations, and by different types of instruments some of which were calibrated and some were not.

6. The exact time of initial fallout is not known. An hour or even half-hour difference in estimating initial time of fallout will make a difference in estimating doses in the early times after detonation.

CLASSIFICATION CANCELLED
AUTHORITY: DOE-DPC
BY [Signature], DATE: 07/11/68

This material contains neither recommendations nor conclusions of the
National Council on Radiation Protection and Measurements. It is the property
of the U.S. Government and is loaned to your agency; its contents are not to be
distributed outside your agency without the express written consent of the
Secretary of Energy or his designee, to whom it must be returned
upon request. The transmission of this document in electronic or other
form is illegal unless prior approval is obtained from the Secretary of Energy.

Distribution:

Orig. - Dr. Bugher
Green, pink & yellow - B&M files
1 cc - Lt. Robt Sharpe, NMRI, NMC, Bethesda, Md.
4 cc's - Bioph. Br.

REFUGELAP

- a. Estimated time of fallout: 5-6 hours.
- b. Time of evacuation and number of vacuums: 1 + 31 (16 by air; 18 by ship)
- c. Radiation levels.
 - 1. (Evacuation Point)

This material contains neither recommendations nor conclusions of the U.S. Government. It does not necessarily reflect official policies or views of the U.S. Government. It is the property of the U.S. Government and is loaned to your agency; it and its contents are not to be distributed outside your agency without the express written consent of the Director, Defense Atomic Support Agency. Distribution outside your agency is prohibited by law.

Predecontamination Readings - 3 March 1954

Mile (E42)	Place	Geiger Muller Reading (E450) hr ⁻¹
0855	Ent at Landing	1.0 R _____
0900	Ent 100 yards from landing	1. R _____
0903	120 yards from landing	1.5 R _____
0904	Ent 50 yards over + 50 yds. from landing	1.2 R _____
0905	Ent 25 yds. over + 50 yds. from landing	1.2 R _____
0906	20 yds. in 50 yds. from landing	1.4 R _____
0907	Ent landing	1.3 R _____
0915	200 yards from beach on ground	1.3 R _____
"	" " " " 3' level	1.3 R _____
0917	250 yards from beach on ground	1.6 R _____
"	" " " " trees	1.3 R _____
0920	150 yards from beach on ground	1.9 R _____
"	" " " " 3' level	1.5 R _____
0922	100 yards in at school house	1.3 R _____
0925	50 yards from beach	1.5 R _____
1020	100 yards in from landing on ground	1.6 R _____
"	" " " " 3' level	1.2 R _____
1023	300 yards in on ground	1.5 R _____
"	" " " 3' level	1.2 R _____
1025	400 yards in on ground	1.8 R _____
"	" " " 3' level	1.3 R _____
1030	450 yards in + 200 yds. over on ground	1.6 R _____
"	" " " " " 3' level	1.3 R _____
1035	200 yards in + 400 over on ground	2.1 R _____
"	" " " " " 3' level	1.5 R _____
1037	200 yards in + 500 over on ground	2.3 R _____
"	" " " " " 3' level	1.6 R _____
1045	" " " 550 " on ground	1.3 R _____
"	" " " " " 3' level	1.4 R _____

- 2. 1. 4 r/hr at N + 31
- 2. 7 r/hr at N + 55
(NYOO aerial survey)

- 3. 1.4 r/hr at N + 36 (Lt. Larson of Task Force)

CLASSIFICATION CANCELLED
AUTHORITY: DCE-DPC
BY [Signature], DATE: 12-3-66

Rongelap (cont'd.)

~~CONFIDENTIAL~~

4.

Typical Readings in Rongelap Village 8 March

Location

Dose Rate (mr/hr)

Rongelap Island (average)
Center of village
Near central cistern
Near southern cistern
Near northern cistern

175
250
300
220
250

(Scoville using TIB)

5. 40 mr/hr at D + 25 (Schiavone using PDR-39)

CLASSIFICATION CANCELLED
AUTHORITY: DCE-DPC
BY [REDACTED] DATE: 23 JUN 1974

5001049

~~CONFIDENTIAL~~

WINGINAS ATOLL (GIFU ISLAND)

- A. Estimated time of fallout: 5-6 hours.
- B. Time of evacuation: Z + 54 hours.
- C. Number of evacuees: 18 natives.
- D. Radiation levels:
 1. 400 μ r/hr at H + 31
240 μ r/hr at H + 75
(NYCO aerial survey)
 2. 445 μ r/hr at Z + 58
(Member of Task Force using TIB)
 3. 100 μ r/hr at D + 9
(Scoville using TIB)

This material contains neither recommendations nor conclusions of the National Oceanic and Atmospheric Administration. It does not necessarily represent any official position of the U.S. Government. It has been reviewed by the Office of General Counsel and is exempt from disclosure under the Freedom of Information Act, except to the extent that it may be constitutionally compelled by law.

CLASSIFICATION CANCELLED
AUTHORITY: DOE-DPC
BY ~~DOE~~ SUMMERN. DATE: 7/21/81

~~CONFIDENTIAL~~

WONGRIK

This material contains neither recommendations nor conclusions of the National Council on Radiation Protection and Measurements or its subcommittees and task groups. It is the property of the U.S.C.N.R.P. It is loaned to your agency; its contents are not to be distributed outside your agency without the prior written consent of the N.C.R.P. It is loaned to your agency; its contents are not to be distributed outside your agency without the prior written consent of the N.C.R.P.

- A. Estimated time of fallout: 7.5 hours.
- B. Time of evacuation and number of evacuees: 3 air weather personnel at H + 28 hours; 20 air weather personnel at H + 34 hours.
- C. Radiation levels.

1. Film badge readings:

98 roentgens (representing 3 Army personnel at one end of island. Was hung about 4 feet high on the tent pole)

32 roentgens (hung between and against one wall of metal barracks)

44 roentgens

40 roentgens

40 roentgens (representing 8 people)

38.5 roentgens (in an icebox)

38 roentgens (* * *)

37.5 roentgens (* * *)

2. SYCO automatic recorder went off-scale (100 mr/hr) at H + 7.3 hours.

3. 1.8 r/hr at H + 28 hours (evacuation team)

4. (Scoville using TIB)

CLASSIFICATION CANCELLED
BY L.P. AUTHORITY DOG-DPC
10 MARCH 1957

TYPICAL READINGS IN CAMP ON ENIWETOK IS. - 10 MARCH

<u>Location</u>	<u>Outside Dose Rate (mr/hr)</u>	<u>Inside Dose Rate (mr/hr)</u>
Eniwetok Island (average)	280	--
Mess hall	220	110
Tent, edge of main camp	270	175
Latrine	260	160
Sleeping quarters	260	90

Longerik (cont'd.)

- 2 -

17 March, 1200 HRS

Living area Readings:

Mess hall interior	40 - 100 mr/hr
Hospital interior	50 - 75 mr/hr
Walk from hospital to mess	100 - 110 mr/hr
Store room (Behind mess)	50 - 55 mr/hr
Exterior store room tent	100 - 150 mr/hr
General Area exterior	100 - 150 mr/hr

Weather Station Site Readings:

Exterior areas local	125 - 150 - 160 mr/hr
Interior all tents	50 - 75 mr/hr
Interior building	50 - 60 mr/hr

Army Site Readings:

General area	140 - 190 mr/hr
Interior tents	70 - 80 mr/hr
Adjacent to trailer	160 - 180 mr/hr

19 March, 1100 - 1220 HRS

Landing on beach	42 mr/hr
Living area	60 mr/hr
Inside mess hall	22 mr/hr
Inside dispensary	26 mr/hr
Inside barracks	23 mr/hr
SSE end of island (Rawinsende)	47 mr/hr
Along road to Rawinsende area 40-42 -	40 mr/hr
Inside weather building	23 mr/hr
Work area outside building	60 mr/hr
Army area (around trailer)	40 mr/hr
Inside foliage area	40 mr/hr
Inside tent	19 mr/hr

19 March, 1400 HRS

Inside weather building	21 mr/hr
Living area Still	60 mr/hr
Inside barracks	23 mr/hr
Inside dispensary	25 mr/hr

CLASSIFICATION CANCELLED
AUTHORITY: DDC-DPC
BY: Mr. SULLIVAN, DATE:
- 3/3/80/86

(JTF 7.4)

5001052

Rangerik (cont'd.,)

- 2 -

5. R. Schilavons using 12-39 recently calibrated
6. 1.7 r/hr at H + 31 hrs.
1.0 r/hr at H + 30 hrs.
(4Y00 aerial survey)

CLASSIFICATION CANCELLED
AUTHORITY: COG-DPC
BY [Signature] DATE: [Redacted]

5001053

~~CONFIDENTIAL~~

~~STRIK~~

- A. Estimated time of fallout: 16-18 hours.
- B. Time of evacuation: H + 78 hours.
- C. Number of evacuees: 154 natives.
- D. Radiation levels.
 - 1. 160 mR/hr at H + 55 (survey team from Task Force using TIB)
 - 2. 120 and 150 mR/hr at H + 77 (Goodwin)
 - 3. 100 mR/hr at H + 77 (Evacuation team)
 - 4. 40 mR/hr at D + 8 (Seeville using TIB)
 - 5. 3.3 mR/hr at D + 54 (highest reading)
 - 6. 2.0 mR/hr at D + 54 (lowest reading)
 - 7. 1.0 - 1.2 mR/hr at D + 54 (on sleeping mats)
 - 8. 240 mR/hr at H + 34
160 mR/hr at H + 80
(NYCO aerial survey)

Distribution:

Orig. - Dr. Bugher

1 cc - Lt. Sharpe, NMRI, NMC, Bethesda, Md.

2 cc's - B&M files (attached to yellow and pink copies of memo
fm. Dunning to Bugher dated June 8, 1954)

2 cc's - Bioph. Br.