CRITERIA FOR RESURVEY OF PACIFIC ISLANDS

Gamma Dose Rate Surveys

Below are listed all relevant data from past gamma dose rate surveys. The basic desire is to match these data with current ones. This may not be possible in all cases but this is the goal. Specific directions and locations are given wherever possible, otherwise general area surveys will have to be made. The instruments should consist of ionization chambers AM/PDR-39 or its equivalent and/or Geiger-Mueller survey instruments, Beckman MX-5 or its equivalent. At least three instruments of any one type should be used for cross check. All meters should be calibrated within a week or two of the time of their use. Generally, the meters should be held at a height of three feet above the ground and any deviation from this position for a specific measurement should be recorded. The dose rate readings should be in units of mr/hr.

RONGELAP ATOLL

Rongelap Island

A. Standard Position.

30 yards inland from Rongelap cemetary (marked by pile of rocks)

	Date	Dose Rate Reading
a.	11 March 1954	210 mr/hr
b.	26 March 1954	40 mr/hr
c.	21 April 1954	17 mr/hr

B. H. Scoville Survey.

	8 March 1954	11 March 1954
1. Center of village	280 mr/hr	170 mr/hr
2. Near southern cistern	220 mr/hr	145 mr/hr
3. Roof of southern cistern	240 mr/hr	140 mr/hr
4. Near central cistern	300 mr/hr	--
5. Near northern cistern	350 mr/hr	--

C. Evacuation Team

Time (D/2)	Place	Geiger Muller Reading (H/50hrs)
0855	Hut at Landing	1.0 r/hr
0900	Hut 100 yards from landing	1.0 "
0903	120 yards from landing	1.5 "
0904	Hut 50 yards over / 50 yds. from landing	1.2 "
0905	Hut 25 yds. over / 50 yds. from landing	1.2 "
0906	20 yds. in 50 yds. from landing	1.4 "
0907	At landing	
0915	200 yards from beach on ground toward village	1.8 "
"	" " " " 3' level " "	1.3 "
0917	250 yards from beach on ground " "	1.6 "
"	" " " " " trees " "	1.3 "
0920	150 yards from beach on ground " "	1.9 "
"	" " " " 3' level " "	1.5 "
0922	100 yards in at school house	1.3 "
0925	50 yards from beach	1.5 "
1020	100 yards in from landing on ground	1.6 "
"	" " " " " 3' level	1.2 "
1023	300 yards in on ground	1.5 "
"	" " " 3' level	1.2 "
1025	400 yards in on ground	1.8 "
"	" " " 3' level	1.3 "
1030	450 yards in / 200 yds. over on ground	1.6 "
"	" " " " " " 3' level	1.3 "
1035	200 yards in / 400 over on ground	2.1 "
"	" " " " " 3' level	1.5 "
1037	200 yards in / 500 over on ground	2.3 "
"	" " " " " 3' level	1.6 "
1045	" " " " 550 " on ground	1.8 "
"	" " " " " 3' level	1.4 "

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D.

Island	Date	Dose Rates mr/hr Average	Maximum
Naen	March 8, 1954	4600	5300
Arrik	"	3700	4200
Lomuilal	"	3700	4200
Gejen	"	3700	---
Lukuen	"	2200	2700
Eriirippu	"	2800	3500
Kabelle	"	2000	3300
Anidej	"	1400	1600
Argar	"	250	400
Eniran	"	600	1000
Eniaetok	March 8, 1954	900	1200
	*April 22, 1954	32	34
*At standard position: Two stakes at 100 yds from beach, just north of western peninsula.			
Busch	March 8, 1954	650	750
	*April 22, 1954	17	21
*At standard position: One stake at 50 yds from beach, center of path in south grove.			
Enialo	March 8, 1954	500	800
	*April 22, 1954	20	--
*At standard position: one stake south end of island			

AILINGINAE ATOLL

Sifo	H/58	445	--
	March 10, 1954	100	120
	April 23, 1954	6	--
Bokonikaiarn	March 10, 1954	140	160
Enibuk	"	120	140

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BIKAR ATOLL

Island	Date	Dose Rates mr/hr Average	Maximum
Bikar	March 9, 1954	140	160

UTIRIK ATOLL

Utirik	H/55	160	--
	H/77	100-120	150
	March 9, 1954	30	50
	*April 23, 1954	3	--

*At standard position: Stake 100 feet in westward direction from the southwest corner of church (in coconut grove).

RONGERIK ATOLL

Eniwetak

~~Rongerik~~ Island

Directions:

Living Area.
Center of island on lagoon side

Weather Station Site.
Northeastern part of island

Army Site.
20 yds inland about 1/4 mile to southwest of living site

Eniwetak Island

/See next page/

Eniwetak Island (cont.)

Location	Date	Dose Rate Reading (mr/hr)
General area of island	H/28 hours March 17, 1954	1,800

17 March 1954, 1200 MIKE

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 1954, 1100-1220 MIKE

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
ESE end of island (Rawinsonde)	47 mr/hr
Along road to Rawinsonde 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 foilage area	40 mr/hr
Inside tent	19 mr/hr

19 March 1954, 1400 MIKE

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

26 March 1954, 1500 MIKE

Army Site	Out	42 mr/hr
	In	20 mr/hr
Weather Site	Out	40 mr/hr
	In	18 mr/hr
Living Site	Out	35 mr/hr
	In	15 mr/hr

SOIL SAMPLES

three samples each [illegible]

Soil samples should be taken by accurately outlining an area of one foot square and collecting the soil to a depth of 2 inches. It will be difficult in some localities to remove the so-called soil. The area of one foot square is important but the depth may be 2 inches or greater.

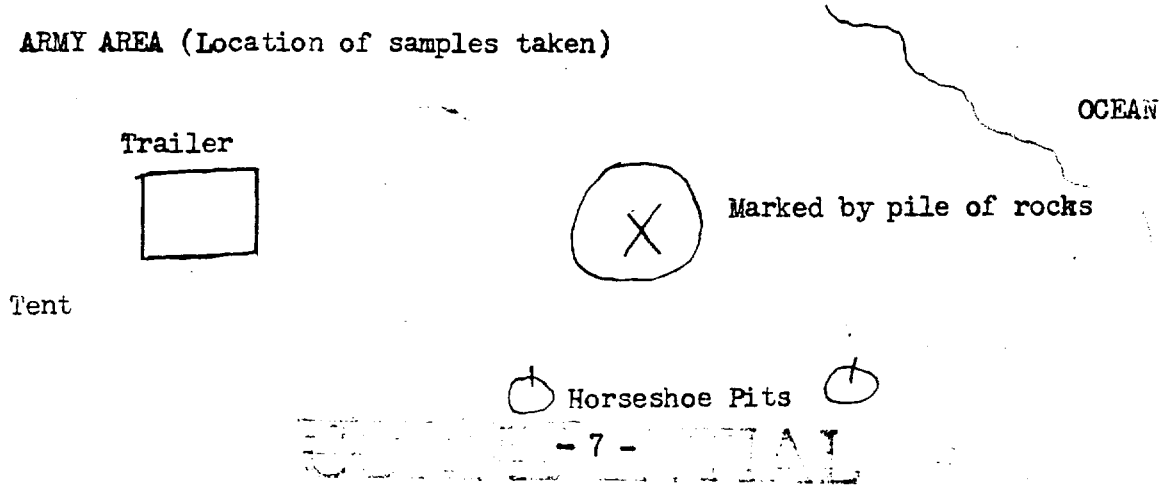
For informational purpose, the results of an analysis of previous soil samples is attached.

Sample No.	Atoll	Island	Date	Mr/Hr
1	Rongelap	Rongelap (North end)	8 March 1954	440
2	Rongelap	Rongelap (Center of village)	8 March 1954	280
3	Rongelap	Rongelap (1 mile north of village)	8 March 1954	340
4	Rongelap	Rongelap (near South cistern of village)	8 March 1954	220
5	Rongelap	Eriirippu	8 March 1954	2200
6	Rongelap	Eniaetok	8 March 1954	900
7	Rongelap	Kabelle	8 March 1954	2000
8	Utirik	Utirik	9 March 1954	40
9	Bikar	Bikar	9 March 1954	160
10	Rongerik	Eniwetak (4 samples -see sketches)	10 March 1954	280
11	Ailinginae	Sifo-Temporary Village	10 March 1954	100
12	Ailuk	Ailuk	6 March 1954 (1600)	~3
or	Likiep	Likiep	6 March 1954 (0800)	3-7

Rongerik Atoll
Eniwetak Island

(All land marks may not still be present)

ARMY AREA (Location of samples taken)



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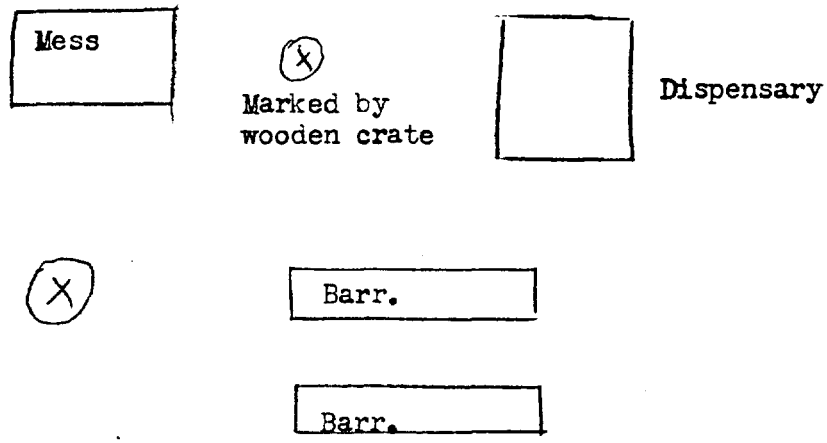
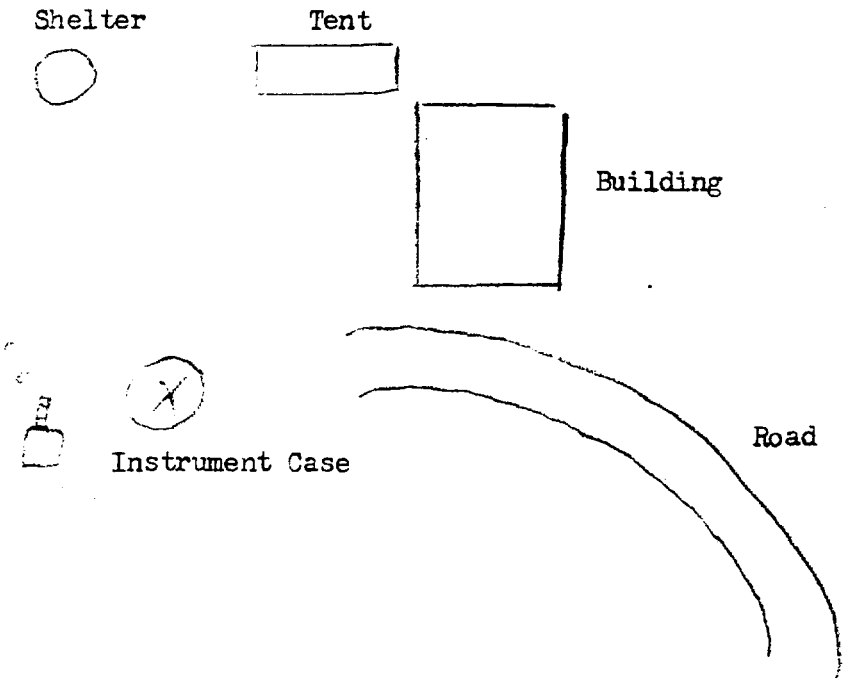
LIVING AREA (Location of samples taken)



WEATHER SITE (Location of samples taken)



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ESTIMATE OF SR^{90} IN SOILS OF PACIFIC ISLANDS

Location	Sr^{90} (μc/ft²) (Estimated from Sr^{89}-Sr^{90} Activity)	Sr^{89}-Sr^{90} (μc/ft²) (Measured)	Total Activity (μc/ft²) (Measured)	Sr^{89}-Sr^{90} (μc/ft²) (Estimated from Total Activity)
Likiep*	1.3×10^{-4}	8.7×10^{-3}	1.2×10^{-1}	1.2×10^{-2}
Jemo	1.8×10^{-4}	1.2×10^{-2}	3.0×10^{-1}	3.0×10^{-2}
Ailuk	5.7×10^{-4}	3.8×10^{-2}	1.0	1.0×10^{-1}
Mejuit	4.2×10^{-4}	2.8×10^{-2}	1.1	1.1×10^{-1}
Ormed	1.6×10^{-4}	1.1×10^{-2}	3.2×10^{-1}	3.2×10^{-2}
Kaven	7.2×10^{-5}	4.8×10^{-3}	1.6×10^{-1}	1.6×10^{-2}
Wotho	2.0×10^{-5}	1.3×10^{-3}	7.8×10^{-2}	7.8×10^{-3}
Rongelap (Northern)	1.6×10^{-2}	1.08	62.0	6.2
(Central)	8.3×10^{-3}	5.5×10^{-1}	40.0	4.0
(1 mi. N.Village)	7.4×10^{-3}	5.3×10^{-1}	5.0	5.0×10^{-1}
(So. Cistern)	1.4×10^{-2}	9.2×10^{-1}	4.5	4.5×10^{-1}
Eriirippu*	3.0×10^{-1}	12.5	230.0	23.0
Eniwetok	1.8×10^{-2}	1.2	50.0	5.0
Kabelle	7.4×10^{-2}	4.9	200.0	20.0
Utirik	1.5×10^{-3}	9.8×10^{-2}	53.0	5.3
Bikar	6.6×10^{-3}	4.4×10^{-1}	3.3	3.3×10^{-1}
Eniwetak	9.9×10^{-3}	6.6×10^{-1}	8.0	8.0×10^{-1}
Sifo	1.4×10^{-3}	9.6×10^{-2}	6.1×10^{-1}	6.1×10^{-2}
Naen**	5.0×10^{-1}			

*All data as of May 5, 1954, except island of Eriirippu where date is May 20.
**Estimated from comparison with dose-rate survey readings with Eriirippu. Highest fallout on any island measured.

WATER SAMPLES

About two quarts from each of the following locations are desired. (Dose rate readings refer to gamma readings taken at three feet above the ground.)

Sample No.	Atoll	Island	Date	Mr/Hr
1	Rongelap	Rongelap (central cistern)	8 March 1954	300
2	Rongelap	Rongelap (North part of village)	8 March 1954	350
3	Rongelap	Rongelap (Northernmost cistern)	8 March 1954	400
4	Rongelap	Rongelap (Southernmost cistern)	8 March 1954	220

[redacted]

DIRECTIONS FOR ENTERING ATOLLS

The following descriptions are recorded from report JTF-7 J-3/370.05 9 April 1954.

Rongelap Atoll:

Entrance can be made quite readily through South Pass and Northeast Pass. West Pass shows quite plainly, however, no passage was attempted because soundings are not adequate. Navigational fixes, using tangents, were good. The Small Boat Passage in the Northwest part of the atoll is difficult to see and appears to be very dnagerous when heavy swells are running.

Landings can be readily made on all islands by motor whaleboat. On most of the islands the beach gradient was quite steep, permitting easy beaching of boats. A sharp lookout should be maintained at all times for coral heads and dark, yellow, or dark green, water should be avoided.

Rongerik Atoll:

The ship did not attempt passage into the atoll because of the poor navigational aids available. It is believed that a shallow draft vessel should experience very little difficulty in making passage.

Small Boating is rough, but not dangerous. Extreme care should be exercised when approaching Bock Island as many coral heads are present and the water is very shallow.

Ailinginae Atoll:

Only small boat entry was made. A shallow draft vessel should have very little difficulty making entry. Navigational cuts were very poor.

Small boating was rough but not dangerous.

Bikar Atoll:

Bikar Island Passage is very difficult to find and passage through the lagoon is difficult even for a small boat. A landing was made with very little difficulty in the lee of Bikar Island at low tide. It was found advisable to put the bow of the boat against the reef, which rises steeply at low tide, and let the party wade ashore. The water is only knee deep at this period of the tide. Backwash from the reef should be carefully watched.

The island and surrounding water teems with fish, turtles and sea birds.

[redacted]

Utirik Atoll:

The four beacons shown on HO chart 6023 have been replaced by two black buoys. It is understood that the Trust Territory AKL makes regular entry into Utirik Atoll through Utirik Passage. The beacons on and around Utirik Island are missing.

Small boating is not difficult, but a sharp watch should be maintained for coral heads.

Upon rounding the SW tip of the Atoll, course was set eastward to skirt the reef along the southern leg which appeared to offer the best lee from wind and surf for the evacuation. Fortunately the weather was exceptionally good with light NE winds and only moderate swells. At 0735M the ship hove to at about 500 yds just south of Utirik Island, the largest of the Atoll and on which all the natives were reported to live.

" ... the Executive Officer and party approached the south shore of the island at a point about 1500 yds west of the eastern tip. The island here and elsewhere has a continuous outer perimeter of table reefs extending some 40 yds out into the water over which the waves produced a surf of medium size and presented considerable small boat hazard. Having selected a point where the surf was slight and appeared to offer the best spot, the Executive Officer commenced paddling ashore in a small, one-man rubber raft (we kept it after picking up a bailed-out jet pilot last fall), which had a line attached to it from the boat. After some progress towards the beach he appeared to experience difficulty with the surf and some unseen force resulting in no progress. Considerable humor and some concern were evoked at sight of the Executive Officer furiously paddling, each stroke whirling the raft 180° around but making no progress. It was later determined that the line from boat to the raft had fouled in the coral, securely anchoring him to seaward. By this time a few of the natives had appeared and some of them swam out and helped him ashore amidst friendly greetings.

At about this time, Navy JRF 912 seaplane arrived from Kwajalein, landed in the western part of the lagoon and commenced taxiing eastward towards Utirik Is. After establishing radio communications with the plane and ascertaining the number of passengers, the Executive Officer was directed to cross over to the lagoon side and use the rubber raft or any means to land the plane passengers. With the friendly help of the cooperative natives, the X.O. with the rubber raft, set out in an outrigger canoe towards the seaplane in the lagoon. But just as he approached the plane it taxiied away apparently not distinguishing him among the natives. It had been suggested to the plane that if he had difficulty landing passengers in the lagoon, he might try landing outside the lagoon near the ship. Upon hearing this suggestion, the plane took off immediately and after one try, a tremendous bounce, another circle and approach, landed the ship about 0915M.

Meanwhile, the gig having disembarked the Executive Officer was instructed by him to proceed eastward about 500 yards to a small cove where the natives said landings could be made with more ease and safety. This was done but calling it a cove is a misuse of the term. Ease and safety did not seem to fit the situation either but it did appear less dangerous. By using the anchor to seaward the gig was slowly worked up to the reef edge where the Radsafe Officer and his team disembarked and waded ashore to the same friendly welcome, handshakes and "Good Morning" from every native large and small."

Recommendations and Summary:

a. Survey of these atolls from a DDE type vessel is somewhat inefficient in that Rongelap is the only atoll, of the five visited, that can be entered and navigated safely, thus limiting the number of islands that can be covered in a given time. Boat handling operations outside the atolls were difficult due to heavy swells. With the forces available, it is believed that the use of a DDE is the most practicable solution for similar missions. For operations subsequent to "CASTLE", it is recommended that a smaller class ship of shallow draft be used. This would permit entry into most lagoons shortening boat runs, in some cases twenty miles.*

b. Make boat entry into windward part of lagoon wherever possible. This permits boats to run down wind, speeding the operation and helping to keep instruments dry.

c. Maintain radio communication with boats. In this respect, this command used SCR 536 which were the only battery type radio available. Communications were fair. It is recommended that an SCR 608 or similar small battery radio with at least a thirty mile range be used if possible.

d. It was found advisable to provide the boats with overlays of the atolls showing magnetic compass courses between islands and passes.

e. Provide boats with food, water, binoculars and rifles. The last for protection against sharks in case a man falls over board.

f. Use stern anchor when beaching to prevent broaching. Do not let boat remain on beach, but haul out and await return of party.

g. Beach in the lee of island whenever possible.

DISTRIBUTION: cy 1A - Dr. Pearson, B&M
2A - Dr. Dunning "
3-8A - Dr. Dunham "

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10-18-54
*underline mine. GMD

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