

410070

September 10, 1982

RESIDENCE ISLANDS AND MAXIMUM DOSES (mrem)

Ato11	Maximum Annual Bone Marrow Dose (mrem)	3 x Maximum Annual Bone Marrow Dose	30 Years Bone Marrow Dose	30 Years Whole Body Dose
<u>Inhabited</u>				
Likiep	17 26	51 78	400 600	360 560
Mejit	32	96	730	710
Rongelap	138	414	3400	2500
Utrik	27	81	680	530
Ujelang	6.2	18.6	150	130
Wotho	9.6	28.8	230	200
Ailuk	93 30	279 90	1300 690	660 660
<u>Uninhabited</u>				
Taka	7.7	23.1	190	140
Jemo	21.0	63.0	500	440
Bikan	57.0	171.0	690	520
Rongerik	151.0	453.0	3800	1800
Ailinginae	78.0	234.0	1800	1800

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Atoll	POPULATION CALCULATIONS			
	1 Initial Population, P_0	2 Deaths in 30 Years/ $164 \times P_0 \div 550$	3 Births in 30 Years/ $1277 \times P_0 \div 550$	4 Population af Years, $P_{30} = 1$ $\div 550$
Rongelap φ	200	59.63 (60)	464.36 (460)	612.36 (600)
	130	38.0 (40)	301.8 (300)	398.0 (400)
Likiep	600	178.9 (180)	1393.09 (1400)	1837.09 (1800)
Mejit	300	89.4 (90)	696.55 (700)	918.54 (900)
Utrik	250	74.5 (70)	580.45 (580)	765.49 (760)
Ujelang	100	29.8 (30)	232.18 (230)	306.18 (300)
Ailuk	400	119.2 (120)	928.7 (930)	1224.7 (1200)
Mocho	100	29.8 (30)	232.18 (230)	306.1 (300)

Ailinginae φ

The numbers in parentheses are the rounded values used for the beach

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32.2
101.2
119.6
414.0
414.0

.00016
.00051
.0006
.0021
.0021

.0024
.0076
.009
.031
.031

.0096
.0304
.036
.12
.12

* Birth defects = 30 year whole body dose x 5 x 10⁶ x number of births.

-6

5.14

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8

Sold Piles

30-Year WB Dose/x Number of Births (Column 2 x Column 4) z1	Minimum Number of In f (Column 8 x 5/x1)	BF
1150	.00	.00
5060	.02	.00
750	.00	.00
784	.00	.00
497	.00	.00
394.4	.00	.00
307.4	.00	.00
29.9	.00	.00
483.6	.00	.00
613.8	.00	.00
734.7	.00	.00
613.8	.00	.00
46.0	.00	.00
55.2	.00	.00
41.4	.00	.00

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Taka (Taka)	100	230	25	.14	.028	.00007	.00028
Jemo	100	230	25	.44	.088	.00022	.00088
Bikar	100	230	25	.52	.104	.026	.104
Rongerik	100	230	25	1.8	.36	.09	.36
Allinginae (Knox)	100	230	25	1.8	.36	.09	.36

* Highest dose values were used. These were based on BNL Community A & B Surveys.

See

1982

2

Number of Births
in 30 Years

Ato

Rongelap (Rongelap)
(Naen)
(Rongelap)

Po

460
460
300

Likiep (Likiep)

1400

Mejit

700

Utrik (Am)
(Utrik)

580
580

Ujelang

230

Ailuk (Kapen)
(Bigen)
(Berejao)
(Ailuk)

930
930
930
930

Wotho (Wotho)
(Medjerg)
(Kabben)

230
230
230

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.00305	.016	.0023	.015	30	4.5	.33%
.00792	.042	.0061	.039	30	4.5	.87%
.0238	.125	.018	.118	30	4.5	2.6%
.0605	.318	.047	.299	30	4.5	6.6%
.0286	.151	.022	.141	30	4.5	3.1%

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8	9	10	11	12	13	14
BEIR-I Absolute (Col. 7 x 87 x 10 ⁻⁶ rem ⁻¹)	Number of Cancer Deaths BEIR-I Relative (Col. 7 x 458 x 10 ⁻⁶ rem ⁻¹)	BEIR-III Absolute (Col. 7 x 67 x 10 ⁻⁶ rem ⁻¹)	BEIR-III Relative (Col. 7 x 430 x 10 ⁻⁶ rem ⁻¹)	Deaths in 30 years	Natural Rates Cancer (15% of All Deaths)	Percent Increase = (Col. 11 ÷ Col. 13 x 100)
.108	.569	.083	.534	60	9.0	5.9 %
.636	3.35	.49	3.14	60	9.0	34.9 %
.070	.370	.054	.347	40	6.0	5.7 %
.0576	.303	.044	.285	180	27.0	1.06%
.035	.185	.027	.173	90	13.5	1.3 %
.0287	.151	.022	.142	70	10.5	1.35%
.0271	.143	.021	.134	70	10.5	1.28%
.00235	.012	.0018	.012	30	4.5	.27%
.1598	.841	.123	.79	120	18.0	4.4 %
.0831	.437	.064	.41	120	18.0	2.3 %
.0518	.273	.04	.256	120	18.0	1.4 %
.0441	.232	.034	.218	120	18.0	1.2 %
.00365	.019	.0028	.018	30	4.5	.4 %
.00522	.027	.0040	.026	30	4.5	.58%
.00322	.017	.0025	.016	30	4.5	.36%

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Taka (Taka)	100	.19	19.	230	.068	15.7	35
Jemo	100	.50	50.	230	.18	41.4	91
Bikar	100	1.5	150.	230	.54	124.2	274
Rongerik (Rongerik)	100	3.8	380.	230	1.368	314.6	695
Atlinginae (Knox)	100	1.8	180	230	.648	149.0	329

* Highest dose values were used. These were based on BNL Community A or B Survey.

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	1	2	3	4	5	6	7
	Initial Population	30-Year Bone Marrow Dose* (rem)	30-Year Person Rems (Col. 1 x Col. 2)	Number of Births Expected in 30 Years	30-Year Dose (0.36 x Col. 2) (rem)	30-Year Additional Person Rems (Col. 4 x Col. 5)	Total Person Rems (Col. 3 + Col. 6)
Atoll							
Rongelap (Rongelap)	200	3.4	680.	460	1.22	563	1243
(Naen)		20.0	4000.	460	7.2	3312	7312
(Rongelap)	130	3.4	442.	300	1.22	366	
Likiep (Likiep)	600	.60	360.	1400	.216	302.4	662
Mejit	300	.73	219.	700	.263	183.96	403
Utrik (Am) (Utrik)	250	.72	180.	580	.259	150.3	312
		.68	170.		.2448	141.98	
Ujelang	100	.15	15.	230	.054	12.4	27
Ailuk (Kapen)	400	2.5	1000.	930	.9	837.	1837
(Bigen)	400	1.3	520.	930	.468	435.24	955
(Berejao)	400	.82	320.	930	.295	274.5	595
(Ailuk)	400	.69	276.	930	.248	231.	507
Wotho (Wotho)	100	.23	23.	230	.0828	19.	42
(Medjeron)	100	.33	33.	230	.1188	27.3	60
(Kabben)	100	.20	20.	230	.072	16.6	37

REPOSITORY PNNL
COLLECTION Marshall Islands
BOX No. 5688
FOLDER Calculations 9/82

DOCUMENT DOES NOT CONTAIN ECI

Reviewed by DJ Kresner Date 4/30/97