

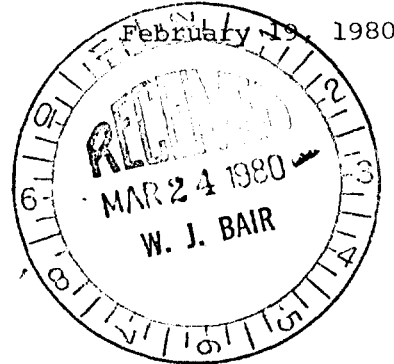


LAWRENCE LIVERMORE LABORATORY

Biomedical & Environmental Sciences Divisions

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Dr. Bruce Wachholz
Department of Energy
Office of Technical Impact,
Office of Environment
Washington, D.C. 20545
E-201

Dear Bruce:

Enclosed are the updated draft form dose assessments for both Enewetak and Bikini Atolls. Neither dose summary includes the lung and bone doses via inhalation pathway because we base the inhalation assessment on the data which EG&G is in the process of correcting.

The target organ for transuranics via the inhalation pathway is not bone marrow or wholebody but endosteal cells and cortical bone, therefore, the doses from ¹³⁷Cs, ⁹⁰Sr and the transuranics are not additive.

I emphasize again that the assumed dietary intake is very critical to the final calculated doses. We have used for both the Enewetak and Bikini assessment the dietary results obtained from the Ujelang Dietary Survey (UDS). We did this because of the similarity of Bikini and Enewetak Atolls and the similarity in the history and current customs of the people. The diet survey was presented in detail in the draft report and appendices.

The UDS is the most complete dietary assessment currently available to us. However, from various literature reports and from preliminary results from Dr. Jan Naidu's work, it is very clear that dietary intake is very specific to a given region or atoll and greatly reflects the customs developed over the past 20 or 30 years.

In summary, the diet is a very important and variable phase of the dose assessment; people who read and interpret our results should be aware of the assumed diet which is an integral and critical part of the assessment.

Sincerely,

William L. Robison
Section Leader
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WLR/mt
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Table 30. 30 and 50 year integral doses in rem for adult females under normal and famine dietary conditions for the Engebi (Janet) Island living pattern.

Pathway Nuclide	30 year Integral Dose, Rem				50 year Integral Dose, Rem			
	Wholebody		Bone Marrow		Wholebody		Bone Marrow	
	Normal	Famine	Normal	Famine	Normal	Famine	Normal	Famine
Ingestion								
^{137}Cs	3.5	7.6	3.5	7.6	5.4	12	5.4	12
^{90}Sr	-	-	0.39	1.2	-	-	0.61	1.9
$^{239+240}\text{Pu}^*$	-	-	0.0032	0.014	-	-	0.0087	0.037
$^{241}\text{Am}^*$	-	-	0.0043	0.018	-	-	0.012	0.048
^{241}Pu (^{241}Am) [*]	-	-	0.0021	0.0077	-	-	0.0078	0.029
External Gamma								
$^{137}\text{Cs} + ^{60}\text{Co}$	1.6	1.6	1.6	1.6	2.1	2.1	2.1	2.1
TOTAL	5.1	9.2	5.5	10	7.4	14	8.1	16

* Mineral bone dose rather than bone marrow; these doses are not included in the total.

famine dietary conditions for the Northeast Quadrant of Engebi (Janet) Island living pattern.

Pathway Nuclide	30 year Integral Dose, Rem				50 year Integral Dose, Rem			
	Wholebody		Bone Marrow		Wholebody		Bone Marrow	
	Normal	Famine	Normal	Famine	Normal	Famine	Normal	Famine
Ingestion								
¹³⁷ Cs	3.4	7.4	3.4	7.4	5.2	11	5.2	11
⁹⁰ Sr	-	-	0.42	1.3	-	-	0.66	2.0
²³⁹⁺²⁴⁰ Pu*	-	-	0.0032	0.014	-	-	0.0087	0.036
²⁴¹ Am*	-	-	0.0043	0.018	-	-	0.012	0.047
²⁴¹ Pu(²⁴¹ Am)*	-	-	0.0021	0.0077	-	-	0.0078	0.029
External Gamma								
¹³⁷ Cs+ ⁶⁰ Co	1.6	1.6	1.6	1.6	2.1	2.1	2.1	2.1
TOTAL	5.0	8.9	5.4	10	7.3	13	8.0	16

* Mineral bone dose rather than bone marrow; these doses are not included in the total.

External Gamma

$^{137}\text{Cs} + ^{60}\text{Co}$ 1.3 1.3 1.3 1.3 1.8 1.8 1.8 1.8

TOTAL 4.0 7.0 4.2 7.8 5.8 11 6.2 12

*Mineral bone dose rather than bone marrow; these doses are not included in the total.

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Table 33. 30 and 50 year integral dose in rem for adult females under normal and famine dietary conditions for the Southwest Quadrant of Engebi (Janet) Island living pattern.

Pathway Nuclide	30 year Integral Dose, Rem				50 year Integral Dose, Rem			
	Wholebody		Bone Marrow		Wholebody		Bone Marrow	
	Normal	Famine	Normal	Famine	Normal	Famine	Normal	Famine
Ingestion								
^{137}Cs	3.0	6.5	3.0	6.5	4.6	10	4.6	10
^{90}Sr	-	-	0.39	1.2	-	-	0.62	1.9
$^{239+240}\text{Pu}^*$	-	-	0.0033	0.014	-	-	0.0089	0.037
$^{241}\text{Am}^*$	-	-	0.0045	0.018	-	-	0.012	0.048
^{241}Pu (^{241}Am)*	-	-	0.0021	0.0077	-	-	0.0078	0.029
External Gamma								
^{137}Cs + ^{60}Co	1.4	1.4	1.4	1.4	1.8	1.8	1.8	1.8
TOTAL	4.4	7.9	4.8	9.1	6.4	12	7.0	14

* Mineral bone dose rather than bone marrow; these doses are not included in the total.

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Table 34. 30 and 50 year integral doses in rem for adult females under normal and famine dietary conditions for the Northwest quadrant of Engebi (Janet) Island living pattern.

Pathway	30 year Integral Dose, Rem				50 year Integral Dose, Rem			
	Wholebody		Bone Marrow		Wholebody		Bone Marrow	
	Normal	Famine	Normal	Famine	Normal	Famine	Normal	Famine
Ingestion								
^{137}Cs	4.8	10	4.8	10	7.3	16	7.3	16
^{90}Sr	-	-	0.5	1.5	-	-	0.79	2.4
$^{239+240}\text{Pu}^*$	-	-	0.0037	0.015	-	-	0.010	0.039
$^{241}\text{Am}^*$	-	-	0.0046	0.018	-	-	0.012	0.049
^{241}Pu (^{241}Am)*	-	-	0.0022	0.0076	-	-	0.0082	0.029
External Gamma								
$^{137}\text{Cs} + ^{60}\text{Co.}$	1.8	1.8	1.8	1.8	2.4	2.4	2.4	2.4
TOTAL	6.6	12	7.1	14	10	18	11	21

* Mineral bone dose rather than bone marrow; these doses are not included in the total.

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Table 35. 30 and 50 year integral doses in rem for adult females under normal and famine dietary conditions for the Engebi (Janet) Island/Northern Island living pattern.

Pathway Nuclide	30 year Integral Dose, Rem				50 year Integral Dose, Rem			
	Wholebody		Bone Marrow		Wholebody		Bone Marrow	
	Normal	Famine	Normal	Famine	Normal	Famine	Normal	Famine
Ingestion								
¹³⁷ Cs	3.2	6.9	3.2	6.9	4.9	11	4.9	11
⁹⁰ Sr	-	-	0.38	1.2	-	-	0.60	1.9
²³⁹⁺²⁴⁰ Pu*	-	-	0.0032	0.014	-	-	0.0087	0.036
²⁴¹ Am*	-	-	0.0043	0.018	-	-	0.0012	0.047
²⁴¹ Pu (²⁴¹ Am)*	-	-	0.0021	0.0076	-	-	0.0078	0.029
External Gamma								
¹³⁷ Cs + ⁶⁰ Co	1.4	1.4	1.4	1.4	1.9	1.9	1.9	1.9
TOTAL	4.6	8.3	5.0	9.5	6.7	12	7.4	14

* Mineral bone dose rather than bone marrow; these doses are not included in the total.

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Table 36. 30 and 50 year integral doses in rem for adult females under normal and famine dietary conditions for the Engebi (Janet) Island/Southern Island living pattern.

Pathway Nuclide	30 year Integral Dose, Rem				50 year Integral Dose, Rem			
	Wholebody		Bone Marrow		Wholebody		Bone Marrow	
	Normal	Famine	Normal	Famine	Normal	Famine	Normal	Famine
Ingestion								
¹³⁷ Cs	0.59	1.2	0.59	1.2	0.84	1.8	0.84	1.8
⁹⁰ Sr	-	-	0.33	1.1	-	-	0.52	1.7
²³⁹⁺²⁴⁰ Pu*	-	-	0.0030	0.013	-	-	0.0081	0.035
²⁴¹ Am*	-	-	0.0040	0.017	-	-	0.011	0.045
²⁴¹ Pu (²⁴¹ Am)*	-	-	0.0018	0.0072	-	-	0.0069	0.027
External Gamma								
¹³⁷ Cs + ⁶⁰ Co	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8
TOTAL	1.9	2.6	2.2	3.7	2.6	3.6	3.1	5.3

* Mineral bone dose rather than bone marrow; these doses are not included in the total.

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Table 37. 30 and 50 year integral doses in rem for adult females under normal and famine dietary conditions for the Aomon (Sally) Island living pattern.

Pathway Nuclide	30 year Integral Dose, Rem				50 year Integral Dose, Rem			
	Wholebody		Bone Marrow		Wholebody		Bone Marrow	
	Normal	Famine	Normal	Famine	Normal	Famine	Normal	Famine
Ingestion								
^{137}Cs	0.64	1.4	0.64	1.4	0.97	2.1	0.97	2.1
^{90}Sr	-	-	0.014	0.20	-	-	0.098	0.31
$^{239+240}\text{Pu}^*$	-	-	0.003	0.13	-	-	0.0079	0.035
$^{241}\text{Am}^*$	-	-	0.0038	0.017	-	-	0.010	0.044
^{241}Pu (^{241}Am)*	-	-	0.0018	0.0072	-	-	0.0068	0.027
External Gamma								
$^{137}\text{Cs} + ^{60}\text{Co}$	0.35	0.35	0.35	0.35	0.46	0.46	0.46	0.46
TOTAL	0.99	1.7	1.1	2.0	1.4	2.6	1.5	3.3

* Mineral bone dose rather than bone marrow; these doses are not included in the total.

Pathway Nuclide	Wholebody		Bone Marrow		Wholebody		Bone Marrow	
	Normal	Famine	Normal	Famine	Normal	Famine	Normal	Famine
Ingestion								
¹³⁷ Cs	0.69	1.5	0.69	1.5	1.0	2.3	1.0	2.3
⁹⁰ Sr	-	-	0.065	0.21	-	-	0.10	0.32
²³⁹⁺²⁴⁰ Pu*	-	-	0.003	0.013	-	-	0.0079	0.035
²⁴¹ Am*	-	-	0.0038	0.017	-	-	0.010	0.044
²⁴¹ Pu(²⁴¹ Am)*	-	-	0.0018	0.0072	-	-	0.0068	0.027
External Gamma								
¹³⁷ Cs+ ⁶⁰ Co	0.38	0.38	0.38	0.38	0.50	0.50	0.50	0.50

* Mineral bone dose rather than bone marrow; these doses are not included in the total.

Ingestion

^{137}Cs	0.62	1.4	0.62	1.4	0.94	2.0	0.94	2.0
^{90}Sr	-	-	0.066	0.21	-	-	0.10	0.32
$^{239+240}\text{Pu}^*$	-	-	0.0029	0.013	-	-	0.0078	0.035
$^{241}\text{Am}^*$	-	-	0.0037	0.017	-	-	0.010	0.044
$^{241}\text{Pu} (^{241}\text{Am}^*)$	-	-	0.0018	0.0072	-	-	0.0068	0.027

External Gamma

$^{137}\text{Cs} + ^{60}\text{Co}$	0.34	0.34	0.34	0.34	0.46	0.46	0.46	0.46
Total	0.96	1.7	1.0	1.9	1.4	2.5	1.5	2.9

*Mineral bone dose rather than bone marrow; these doses are not included in the total.

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Table 40. 30 and 50 year integral doses in rem for adult females under normal and famine dietary conditions for the Bijire (Tilda) Island/Northern Islands living pattern.

Pathway Nuclide	30 year Integral Dose, Rem				50 year Integral Dose, Rem			
	Wholebody		Bone Marrow		Wholebody		Bone Marrow	
	Normal	Famine	Normal	Famine	Normal	Famine	Normal	Famine
Ingestion								
¹³⁷ Cs	0.67	1.5	0.67	1.5	1.0	2.2	1.0	2.2
⁹⁰ Sr	-	-	0.067	0.21	-	-	0.10	0.33
²³⁹⁺²⁴⁰ Pu*	-	-	0.0029	0.013	-	-	0.0078	0.035
²⁴¹ Am*	-	-	0.0037	0.017	-	-	0.0010	0.044
²⁴¹ Pu (²⁴¹ Am)*	-	-	0.0018	0.0072	-	-	0.0068	0.027
External Gamma								
¹³⁷ Cs + ⁶⁰ Co	0.38	0.38	0.38	0.38	0.5	0.5	0.5	0.5
TOTAL	1.0	1.8	1.1	2.1	1.5	2.7	1.6	3.1

* Mineral bone dose rather than bone marrow; these doses are not included in the total.

* Mineral bone dose rather than bone marrow; these doses are not included in the total.

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Table 42. 30 and 50 year integral doses in rem for adult females under normal and famine dietary conditions for the Southern Islands/Northern Islands living pattern.

Pathway Nuclide	30 year Integral Dose, Rem				50 year Integral Dose, Rem			
	Wholebody		Bone Marrow		Wholebody		Bone Marrow	
	Normal	Famine	Normal	Famine	Normal	Famine	Normal	Famine
Ingestion								
¹³⁷ Cs	0.18	0.41	0.18	0.41	0.27	0.61	0.27	0.61
⁹⁰ Sr	-	-	0.021	0.071	-	-	0.031	0.10
²³⁹⁺²⁴⁰ Pu*	-	-	0.0029	0.013	-	-	0.0076	0.035
²⁴¹ Am*	-	-	0.0035	0.016	-	-	0.0094	0.043
²⁴¹ Pu (²⁴¹ Am)*	-	-	0.0016	0.0067	-	-	0.0060	0.025
External Gamma								
¹³⁷ Cs+ ⁶⁰ Co	0.11	0.11	0.11	0.11	0.14	0.14	0.14	0.14
TOTAL	.029	0.52	0.32	0.62	0.41	0.75	0.46	0.92

* Mineral bone dose rather than bone marrow; these doses are not included in the total.

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Table 43. 30 and 50 year integral doses in rem for a child** under normal and famine dietary conditions for the Engebi (Janet) Island living pattern.

Pathway Nuclide	30 year Integral Dose, Rem				50 year Integral Dose, Rem			
	Wholebody		Bone Marrow		Wholebody		Bone Marrow	
	Normal	Famine	Normal	Famine'	Normal	Famine	Normal	Famine
Ingestion								
^{137}Cs	2.8	5.9	2.8	5.9	4.6	9.9	4.6	9.9
^{90}Sr	-	-	0.33	1.1	-	-	0.56	1.8
$^{238+240}\text{Pu}^*$	-	-	0.0027	0.0097	-	-	0.0079	0.029
$^{241}\text{Am}^*$	-	-	0.0035	0.013	-	-	0.010	0.038
^{241}Pu ($^{241}\text{Am}^*$)	-	-	0.0017	0.0059	-	-	0.0072	0.024
External Gamma								
$^{137}\text{Cs} + ^{60}\text{Co}$	1.5	1.5	1.5	1.5	2.1	2.1	2.1	2.1
Total	4.3	7.5	4.7	8.6	6.7	12	7.3	14

** It is assumed that the child is born at the time of return and lives his entire life span on Engebi Island

* Mineral bone dose rather than bone marrow; these doses are not included in the total.

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Table 44. 30 and 50 year integral doses in rem for a child** under normal and famine dietary conditions for the Engebi (Janet) Island living pattern.

Pathway Nuclide	30 year Integral Dose, Rem				50 year Integral Dose, Rem			
	Wholebody		Bone Marrow		Wholebody		Bone Marrow	
	Normal	Famine	Normal	Famine	Normal	Famine	Normal	Famine
Ingestion								
^{137}Cs	2.8	6.3	2.8	6.3	4.3	9.6	4.3	9.6
^{90}Sr	-	-	0.40	1.2	-	-	0.60	1.8
$^{239+240}\text{Pu}^*$	-	-	0.0029	0.0099	-	-	0.0082	0.029
$^{241}\text{Am}^*$	-	-	0.0039	0.013	-	-	0.011	0.038
^{241}Pu (^{241}Am)*	-	-	0.0018	0.0059	-	-	0.0072	0.024
External Gamma								
$^{137}\text{Cs} + ^{60}\text{Co}$	1.2	1.2	1.2	1.2	1.6	1.6	1.6	1.6
TOTAL	4.0	7.5	4.5	8.8	5.9	11.2	6.6	13

* Mineral bone dose rather than bone marrow; these doses are not included in the total.

** It is assumed that the child is born 8 years after return and lives his entire life span on Engebi Island.

Maximum Annual Dose Rate in mrem/y for a Living Pattern Consisting of 100% Time on Eneu Island

Case When Imported Foods are Readily Available in the Diet⁺

	¹³⁷ Cs + ⁹⁰ Sr Ingestion	External Gamma [*]	Total	Year of Maximum Dose
Bone Marrow	104	14	118	3
Wholebody	93	14	107	3

Case When Local Subsistence Crops are in Full Use⁺

	¹³⁷ Cs + ⁹⁰ Sr Ingestion	External Gamma [*]	Total	Year of Maximum Dose
Bone Marrow	225	14	238	3
Wholebody	191	14	205	3

⁺ All subsistence food crops are from Eneu Island

^{*} Natural background subtracted

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Maximum Annual Dose Rate in mrem/y for a Living Pattern Consisting of 90% Time on Eneu Island and 10% Time on Bikini Island; All Local Foods from Eneu.

Case When Imported Foods are Readily Available in the Diet⁺

	¹³⁷ Cs + ⁹⁰ Sr Ingestion	External Gamma [*]	Total	Year of Maximum Dose
Bone Marrow	103	32	135	3
Wholebody	92	33	125	2

Case When Local Subsistence Crops are in Full Use⁺

Bone Marrow	224	32	256	3
Wholebody	190	32	222	3

⁺ All subsistence food crops are from Eneu Island

^{*} Natural background subtracted

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Maximum Annual Dose Rate in mrem/y for a Living Pattern Consisting of 50% of the Diet and 50% Time Spent on Eneu Island and the Other 50% of Both Diet and Time Associated With Bikini Island.

Case when Imported Foods are Readily Available in the Diet.

	$^{137}\text{Cs} + ^{90}\text{Sr}$ Ingestion	External Gamma *	Total	Year of Maximum Dose
Bone Marrow	461	102	563	3
Wholebody	428	102	530	3

Case When Imports are Unavailable; Local Foods in Full Use.

Bone Marrow	988	102	1090	3
Wholebody	884	102	986	3

* Natural background subtracted

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Maximum Annual Dose Rate in mrem/y for a Living Pattern Consisting of 100% Time on Bikini Island

Case When Imported Foods are Readily Available in the Diet⁺

	¹³⁷ Cs + ⁹⁰ Sr Ingestion	External Gamma *	Total	Year of Maximum Dose
Bone Marrow	818	189	1007	3
Wholebody	763	189	952	3

Case When Local Subsistence Crops are in Full Use⁺

Bone Marrow	1752	189	1941	3
Wholebody	1577	189	1766	3

* Local background subtracted

+ All Subsistence food crops are from Bikini Island

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30 Year Dose in Rem for a Living Patti
on Bikini Island and all of the Local

Imported Food Available

	Wholebody	Bone
1	2.1	
9	-	
239	-	
241	-	
239	-	
a	0.71*	
Total	2.8	

Subtracted

Ing 1 9 239 241 239 Ext *

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30 Year Integral Dose in Rem for a Living Pattern Consisting of 50% of the Diet and 50% Time Associated with Eneu Island and the Other 50% of Both Diet and Time Associated With Bikini Island.

Ingestion	<u>Imported Food Available</u>		<u>Imported Food Unavailable</u>	
	Wholebody	Bone Marrow and Bone	Wholebody	Bone Marrow and Bone
^{137}Cs	9.7	9.7	20	20
^{90}Sr	-	1.1	-	3.5
$^{239+240}\text{Pu}$	-	0.00048	-	0.0015
^{241}Am	-	0.0014	-	0.0042
$^{239}\text{Pu}/^{241}\text{Am}$	-	-	-	-
External Gamma	<u>2.3*</u>	<u>2.3*</u>	<u>2.3*</u>	<u>2.3*</u>
Total	12	13	22	26

* Background Subtracted

30-Year Integral Dose in Rem for a Living

Ingestion	<u>Imported Foods Available</u>	
	Wholebody	Bone Marrow and Bone
^{137}Cs	17	17
^{90}Sr	-	1.8
$^{239+240}\text{Pu}$	-	0.00059
^{241}Am	-	0.0015
$^{239}\text{Pu}/^{241}\text{Am}$	-	-
External Gamma	<u>4.2*</u>	<u>4.2*</u>
Total	21	23

* Background Subtracted

Table 29. Maximum annual dose rates in mrem/y for adult females in both normal and famine dietary conditions.

Location	Type of Diet	Organ	Pathway		Total	Year of Maximum Dose
			Ingestion	External Gamma		
Engebi (Janet)	Normal	Bone Marrow Wholebody	199	57	256	10
			183	59	242	9
	Famine	Bone Marrow Wholebody	447	57	504	10
			402	57	459	10
Engebi (Janet) Northeast Quadrant	Normal	Bone Marrow Wholebody	194	59	253	10
			177	61	238	9
	Famine	Bone Marrow Wholebody	438	59	497	10
			389	59	448	10
Engebi (Janet) Southeast Quadrant	Normal	Bone Marrow Wholebody	148	49	197	10
			137	51	183	9
	Famine	Bone Marrow Wholebody	330	49	379	10
			301	49	350	9
Engebi (Janet) Southeast Quadrant	Normal	Bone Marrow Wholebody	172	51	223	10
			156	53	209	9
	Famine	Bone Marrow Wholebody	389	51	440	10
			343	51	394	10
Engebi (Janet) Northwest Quadrant	Normal	Bone Marrow Wholebody	270	68	338	10
			249	71	320	9
	Famine	Bone Marrow Wholebody	606	68	674	10
			548	68	616	10
Aomon (Sally)	Normal	Bone Marrow Wholebody	35	13	48	9
			33	13	46	9
	Famine	Bone Marrow Wholebody	80	13	93	10
			72	13	85	9
Bijire (Tiida)	Normal	Bone Marrow Wholebody	34	13	47	9
			32	13	45	9
	Famine	Bone Marrow Wholebody	78	13	91	10
			69	13	82	9
Southern Islands	Normal	Bone Marrow Wholebody	3.5	1.2	4.7	3
			2.8	1.3	4.1	2
	Famine	Bone Marrow Wholebody	9.2	1.1	10.3	5
			6.8	1.2	8	3

Table 29 Continued

Location	Type of Diet	Organ	Pathway		Total
			Ingestion	External Gamma	
Engebi (Janet) Island/Northern Islands ^a	Normal	Bone Marrow Wholebody	181	52	233
			166	54	220
Engebi (Janet) Island/Southern Islands ^b	Famine	Bone Marrow Wholebody	409	52	461
			364	52	416
Engebi (Janet) Island/Southern Islands ^b	Normal	Bone Marrow Wholebody	36	51	87
			18	67	85
Aomon (Sally) Island/Northern Islands ^a	Famine	Bone Marrow Wholebody	101	47	148
			57	51	108
Aomon (Sally) Island/Northern Islands ^a	Normal	Bone Marrow Wholebody	37	15	52
			35	15	50
Bijire (Tilda) Island/Northern Islands ^a	Famine	Bone Marrow Wholebody	86	14	100
			76	15	91
Bijire (Tilda) Island/Northern Islands ^a	Normal	Bone Marrow Wholebody	36	15	51
			34	15	49
Southern Islands/ Northern Islands	Famine	Bone Marrow Wholebody	84	14	98
			74	15	89
Southern Islands/ Northern Islands	Normal	Bone Marrow Wholebody	9.8	4.1	13.9
			8.8	4.1	12.9
Engebi (Janet) Birth through 70 yc	Famine	Bone Marrow Wholebody	23	4.1	27
			20	4.1	24
Engebi (Janet) Birth through 70 yc	Normal	Bone Marrow Wholebody	160	41	201
			142	41	183
Engebi (Janet) Birth through 70 yc	Famine	Bone Marrow Wholebody	366	41	407
			311	41	352

^aFifteen percent of the coconut intake is from the Northern Islands.

^bAll of the coconut intake is from the Southern Islands.

^cIt is assumed that the child is born at the time of return and lives his entire lifespan on Engebi (Janet) Island.

Table 29 Continued

Location	Type of Diet	Organ	Inges
Engabi (Janet) Birth through 70 yd	Normal	Bone Marrow Wholebody	113 92
	Famine	Bone Marrow Wholebody	303 257

d It is assumed that the child is born at the time of return and lives

REPOSITORY PNNL
COLLECTION Marshall Islands
BOX No. 5684
FOLDER Bikini - 1981

DOCUMENT DOES NOT CONTAIN ECI

Reviewed by R. Schmitt Date 4/30/97