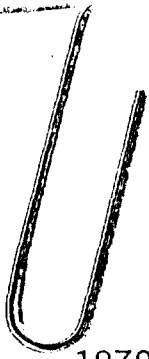




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PACIFIC NORTHWEST LABORATORIES  
 RICHLAND, WA 99352



1830 MATERIAL

409884

1831 MATERIAL

TELECOPY MACHINE DIRECT DIAL  
 FTS-376-3876

(509) 375-2718 -  
 TELECOPY MACHINE

VERIFICATION:  
 FTS-444-7511 - ASK FOR FULL  
 EXTENSION 375-2771

(509) 375-2771 -  
 VERIFICATION

DOCUMENT DOES NOT CONTAIN ECI

Reviewed by J. Schmitt Date 4/30/97

TELECOPY IS INTENDED FOR THE TRANSMISSION  
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DATE: 9/11/80

TO: Bruce W. Wachholz

ADDRESSEE'S NO. FTS: 233-4365  
Comm: 353-4365

DOE/EV

TELECOPIER NO. 4-88-233-3870

Mail Station: E-201

VERIFICATION NO. 4-88-233-3486

Germantown, MD

FROM: W. J. Bair

SENDER'S NO. 509-375-2421

Pacific Northwest Laboratory  
Richland, WA

COST CODE 7C20

WORK ORDER NO. A76493

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RICHLAND, WA 99352

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TO: J. W. Healy  
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Los Alamos, NM 87545

ADDRESSEE'S NO. 488-843-3317

TELECOPIER NO. 4-88-843-6937

VERIFICATION NO. 4-88-843-5113

FROM: W. J. Bair  
Pacific Northwest Laboratory  
Richland, WA

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*of Bural*

JACK: ATTACHED ARE THE LATEST CALCULATIONS. PLEASE CHECK TODAY AND IF SOMETHING IS WRONG LET ME KNOW IMMEDIATELY. PLEASE SEE EXAMPLE BELOW.

Oran armij ro remaroñ bwelen mij jen *cancer* iumin yid kein 30 rej itok, emaroñ lõnlok kin joñan in ..... 0.3 lok nõn 1  
The number of people who might die from cancer during the next 30 years might increase by this amount ..... from 0.3 to 1

Melelen, bwe elañe enaj wor 24 armij remij ilo yid kein 30 iman jen jabrewõt *cancer* ijellokin *cancer* ko rej walok jen *radiation* eo ej walok jen *atomic bomb*, emaroñ bar kobatok 0.3 nõn 1 eo ej mij jen *cancer* ko rej walok jen *radiation* eo ej walok jen *atomic bomb*.

This means that if there would be 24 people die within the next 30 years from any cancer other than that caused by radiation left from atomic bombs, there might be an additional 0.3 to 1 who die from cancer that is caused by radiation left from atomic bombs.

Joñan lõnlok in ajiri ro remaroñ bwelen lotaktok kin nahinmij ak utamwe ilo yid kein 30 rej itok ..... 0.8  
The possible increase of children born with health defects within the next 30 years

Melelen, bwe elañe enaj wor 140 ajiri ro rej lotaktok kin nahinmij ak utamwe walok jen jabrewõt un ko ijellokin *radiation* eo ej walok jen *atomic bomb* ilo yid kein 30 iman, emaroñ bar kobatok 0.8 eo ej lotaktok kin nahinmij ak utamwe walok jen *radiation* eo ej walok jen *atomic bomb*.

This means that if there were 140 children born with health defects occurring from any cause other than radiation left from atomic bombs, within the next 30 years, there might be an additional 0.8 children born with defects caused by radiation left from atomic bombs.

*M-20A3*

*ck*

POPULATION DATA

September 10, 1980

People who returned - 140

$$\text{Deaths in 30 years } \frac{164}{550} = \frac{x}{140}, x = \underline{\underline{41.7}} \approx 40$$

$$\text{Births in 30 years } \frac{1277}{550} = \frac{x}{140}, x = \underline{\underline{325.}} \approx 300$$

Population of 550

$$\begin{aligned} \text{Deaths in 30 years} &= 164 \approx 160 \\ \text{Births in 30 years} &= 1277 \approx 1300 \end{aligned}$$

Population of 235

$$\text{Deaths in 30 years, } \frac{164}{550} = \frac{x}{235}, x = 70.07 \approx 70$$

$$\text{Births in 30 years, } \frac{1277}{550} = \frac{x}{235}, x = 545.62 \approx 550$$

Population of 350

$$\text{Deaths in 30 years, } \frac{164}{550} = \frac{x}{350}, x = 104.36 \approx 100$$

$$\text{Births in 30 years, } \frac{1277}{550} = \frac{x}{350}, x = 812.63 \approx 800$$

Sept. 10, 1980

BIRTH DEFECTS

1	2	3	4	5	6	7	8
<u>Living Conditions</u>	<u>Initial Population</u>	<u># of Births in 30 Yr</u>	<u>Spontaneous Birth Defects (10.7%)</u>	<u>30-Yr Whole Body Dose (rem)</u>	<u>% Increase 0.2%/rem</u>	<u>No. of Increased Birth Defects</u>	<u>Value Used In Book</u>
1	550	1300	139.1→140	2.8	.56	.78	.8
2	550	1300	139.1→140	5.4	1.08	1.51	2.
3	550	1300	140	24	4.8	6.72	7.
4	550	1300	140	44	8.8	12.32	12.
5	550	1300	140	3.2	.64	.896	1.
6	550	1300	140	5.9	1.18	1.65	2.
7	350	800	85.6→90	1.4	.28	.252	.3
8	350	800	85.6→90	2.8	.56	.50	.5
9	350	800	90	1.6	.32	.288	.3
10	350	800	90	3.0	.6	.54	.5
11	235	550	58.85→60	.96	.192	.1152	.1
12	235	550	58.85→60	1.9	.38	.228	.2
13	235	550	60	1.1	.22	.132	.1
14	235	550	60	2.0	.4	.24	.2

CANCER RISKS

1	2	3	4	5	6	7	8	9	10	11
Living Conditions	Initial Population	30-Yr Bone Marrow Dose (rem)	30-Yr Person (rem)	# of Births Expected in 30 Yr	30-Yr Dose (0.36 x Col. 3) (rem)	30-Yr Additional Person (rem)	Total Person (rem)	# Cancer Deaths $87 \times 10^{-6}$	Cancer Deaths $458 \times 10^{-6}$	Natural Rates Deaths Cancer 15A
1. <u>NEU-100%</u>	550	3.0	1650	1300	1.08	1404	3054	.266	1.399	160
2. No imported food	550	6.0	3300	1300	2.16	2808	6108	.531	2.797	160
3. <u>BIKINI-100%</u>	550	25.	13750	1300	9.0	11700	25450	2.214	11.66	160
4. No imported food	550	47.	25850	1300	16.92	21996	47846	4.16	21.92	160
5. <u>NEU-330 days</u>	550	3.4	1870	1300	1.224	1591	3461	.301	1.585	160
6. <u>BIKINI-35 days</u>	550	6.5	3575	1300	2.340	3042	6617	.576	3.03	160
7. <u>NEU-1 year on and 1 year off</u>	350	1.5	525	800	.54	432	957	.083	.438	100
8. No imported food	350	3.1	1085	800	1.116	892.8	1978	.172	.906	100
9. <u>NEU-330 days</u>	350	1.7	595	800	.612	489.6	1085	.094	.497	100
10. <u>BIKINI-35 days</u>	350	3.3	1155	800	1.188	950.4	2105	.183	.964	100
11. <u>NEU-1 year on and 2 years off</u>	235	1.03	242	550	.371	203.9	446	.0388	0.204	70
12. No imported food	235	2.1	494	550	.756	415.8	909.8	.0792	.417	70
13. <u>NEU-330 days</u>	235	1.2	282	550	.432	237.6	520	.045	.238	70
14. <u>BIKINI-35 days</u>	235	2.2	517	550	.792	435.6	952.6	.083	.436	70



RISKS

Sept. 1, 1980

Dose (rem)	30-Yr Additional Person (rem)	Total Person (rem)	# Cancer Deaths 87x10 <sup>-6</sup>	458x10 <sup>-6</sup>	Natural Rates	
					Deaths	Cancer 15a
7	8	9	10	11	11	11
1.08	1404	3054	.266	1.399	160	24
2.16	2808	6108	.531	2.797	160	24
9.0	11700	25450	2.214	11.66	160	24
5.92	21996	47846	4.16	21.92	160	24
1.224	1591	3461	.301	1.585	160	24
2.340	3042	6617	.576	3.03	160	24
.54	432	957	.083	.438	100	15
1.116	892.8	1978	.172	.906	100	15
.612	489.6	1085	.094	.497	100	15
1.188	950.4	2105	.183	.964	100	15
.371	203.9	446	.0388	0.204	70	11
.756	415.8	909.8	.0792	.417	70	11
.432	237.6	520	.045	.238	70	11
.792	435.6	952.6	.083	.436	70	11