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### FALLOUT COMPARISONS

"It may be of general interest that the average total fallout over the United States from the Castle series of tests in the Pacific this past spring has amounted to approximately 100 millicuries per square mile as of this week (September 23, 1954)." This is a quotation from remarks prepared by Dr. J. C. Bugher, Director, Division of Biology and Medicine, AEC, for delivery at an industrial health conference in Houston, Texas.

It is of interest to compare this average value with depositions noted in and around company facilities at Hanford Works and KAPL. The data should be accepted as illustrative only, as it involves assumptions on total deposition from scattered readings on vegetation in some cases, and also includes dubious estimates of travel time from the detonating source. The relative degree of hazard is not determined solely by these numbers. Other relevant factors include:

#### 1. For External Radiation

Persistence of the radiation - this is approximately compensated for in the column giving integrated millicurie-days per square mile.

Maximum activity of a single particle. Data on this are limited, but clearly the Redox particles are considerably more dangerous with respect to this factor.

#### 2. For Internal Radiation

The radiochemical composition, particle size and solubility are important. Internally, the Redox ruthenium particulates are not in the most hazardous category. This brief note will not attempt to define the relative hazard for the various cases.

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For the present purposes, we do not submit an analysis of the relative hazards.

FALLOUT COMPARISONS

Date	Location	Probable Source	Deposition Density mc/sq. mile	Approximate mc-days per sq. mile
1946	Separations areas	Separations Plants 1131	~300,000	~3,400,000
1946	Tri-cities	Separations Plants 1131	~30,000	~340,000
Current	Redox area	Redox	3,000	1,500,000
Current	Tri-cities	Redox	10	5,000
9/49	Hanford Works	Russia	~100	unknown
2/51	Hanford Works	Nevada	250	9,000
4/51	Hanford Works	Eniwetok	200	9,000
5/51	Hanford Works	Eniwetok	100	4,000
10/51	Hanford Works	Russia	250	8,000
10/51	Hanford Works	Nevada	500	5,000
11/51	Hanford Works	Nevada	250	1,000
12/51	Hanford Works	Nevada	100	4,000
4/52	Hanford Works	Nevada	1,000	30,000
5/52	Hanford Works	Nevada	250	8,000
6/52	Hanford Works	Nevada	1,500	15,000
10/52	Hanford Works	Unknown	500	30,000
11/52	Hanford Works	Eniwetok	500	30,000

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FALLOUT COMPARISONS (Continued)

Date	Location	Probable Source	Deposition Density mc/sq. Mile	Approximate mc-days per sq. mile
5/53	Hanford Works	Nevada	250	1000
5/53	Hanford Works	Nevada	20,000	100,000
8/53	Hanford Works	Russia	2000	90,000
5/54	Hanford Works	Unknown	4000	100,000
1/52	KAPL	Nevada	10,000	250,000
5/51	KAPL	Eniwetok	60	5,000
11/51	KAPL	Nevada	300	8,000
6/52	KAPL	Nevada	200	5,000
11/52	KAPL	Eniwetok	200	6,000
3/53	KAPL	Nevada	100	2,500
4/53	KAPL	Nevada	20,000	500,000
4/54	KAPL	Bikini	100	3,000

In summary, we may show the data as follows:

ENVIRONS OF RICHLAND

Source	Max. mc/sq. mile	Total mc-days/sq. mile
Separations 131	~ 30,000	~ 340,000
Radon (Ru)	~ 20	~ 10,000
Russia	2,000	~ 100,000
Pacific	500	~ 40,000
Nevada	20,000	~ 170,000
Unknown	4,000	~ 130,000

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EVIDENCE OF KAPL

<u>Source</u>	<u>Max. mc/sq. mile</u>	<u>Total mc-days/sq. mile</u>
Pacific	200	17,000
Nevada	20,000	750,000

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