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Attn: DF Shaw

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Hanford
43413

Richland, Washington
February 28, 1952

This document consists of
5 pages #3 of
9 copies, Series B

Atomic Energy Commission
Hanford Operations Office
Richland, Washington

Attention: Mr. D.F. Shaw, Manager

Gentlemen:

SUBJECT: INFORMATION FOR REACTOR SAFEGUARD COMMITTEE
Ref: Memorandum, R.W. Cook to D.F. Shaw, dated 2/15/52,
GEH-19,565

Submitted in itemized form arranged to match the questions of the referenced document are answers concerning radioactive contamination in the vicinity of the Hanford Works. These data are intended for retransmittal to the Reactor Safeguard Committee.

If any additional data are required, Mr. H.J. Paas, who prepared the present submission, would be pleased to furnish whatever is available.

Very truly yours,

ORIGINAL SIGNED
BY H. M. PARKER

Director
RADIOLOGICAL SCIENCES DEPT.

HM Parker:swc

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HMP-LWS

2-28-72

Item 1ACTIVITY DENSITY OF GROSS BETA EMITTERS
IN THE COLUMBIA RIVER AT HANFORD SOUTH BANK

<u>Month</u>	<u>Maximum Sample</u> ($\mu\text{c/cc}$)	<u>Monthly Average</u> ($\mu\text{c/cc}$)
<u>1951</u>		
January	4.1×10^{-6}	
February	7.4×10^{-6}	
March	7.7×10^{-6}	
April	8.7×10^{-6}	
May	4.3×10^{-6}	
June	2.5×10^{-6}	
July	2.1×10^{-6}	1.3×10^{-6}
August	7.3×10^{-6}	3.8×10^{-6}
September	1.1×10^{-5}	6.0×10^{-6}
October	8.0×10^{-6}	5.5×10^{-6}
November	8.5×10^{-6}	5.6×10^{-6}
December	9.6×10^{-6}	5.4×10^{-6}
<u>1952</u>		
January	7.9×10^{-6}	5.4×10^{-6}
February	1.0×10^{-5}	5.9×10^{-6}

Item 2

The maximum sample and maximum monthly average activity density of gross beta emitters in the Columbia River during 1951 at Richland was $3.4 \times 10^{-6} \mu\text{c/cc}$, and $2.8 \times 10^{-6} \mu\text{c/cc}$, respectively. Similar measurements obtained at the Pasco side of the Pasco-Kennewick Bridge showed $2.6 \times 10^{-6} \mu\text{c/cc}$, and $2.3 \times 10^{-6} \mu\text{c/cc}$.

Item 3

Flow rates of the Columbia River as measured on the first day of the month from July, 1951, to date were as follows:

<u>1951</u>	<u>GPM</u>
July	2,475,000
August	1,710,000
September	758,000
October	533,000
November	653,000
December	578,000
<u>1952</u>	
January	488,000
February	610,000

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Dissolving data and stack monitoring results for the periods September 1950 to January 1951 and July 1951 to January 1952 are summarized below. As initial measurements were made in September, we do not have information for the period July through August 1950.

Item #	Dissolving Data		Stack Monitoring Results*	
	Mean Cooling Period/(Days)	Curtles I-131 Dissolved/day	Curtles I-131 Emitted/day	Percent Dissolved I-131 Emitted
9/2/50	70	207	0.9	1.5
9/9	68	216	17.4	13.4
9/16	66	324	52.5	20.9
9/23	71	191	32.2	28.6
9/30	74	149	13.3	24.8
10/7/50	75	131	7.8	17.8
10/14	72	169	9.9	27.2
10/21	74	163	4.0	6.8
10/28	79	91	2.5	4.2
11/4/50	78	70	3.1	6.0
11/11	76	149	--	--
11/18	74	220	0.6	0.6
11/25	74	97	--	--
12/2/50	77	124	0.5	5.2
12/9	75	261	0.4	--
12/16	77	117	0.2	3.9
12/23	74	247	0.1	--
12/30	68	436	2.5	0.5
6/30/51	48	1420	535	38.8
7/7	48	885	206	8.5
7/14	48	485	162	28.5
7/21	42	1530	11.5	0.6
7/28	46	910	7.7	0.6
8/4/51	--	--	2.7	--
8/11	42	1800	1.3	0.04
8/18	48	720	--	--
8/25	42	1910	0.8	0.03
9/1/51	45	1360	0.09	0.8
9/8	46	875	3.9	0.4
9/15	48	550	7.8	0.8
9/22	41	1920	16.7	1.0
9/29	41	2420	28.0	1.2
10/6/51	51	960	5.6	0.4
10/13	41	1490	8.3	0.7
10/20	48	820	2.2	0.2
10/27	44	1100	1.9	0.2
11/3/51	44	1560	2.0	0.1
11/10	46	1590	1.6	0.1
11/17	48	970	0.4	0.04
11/24	58	350	0.7	0.6

* Results represent measurements at the 200-West Area Stack.

EMP-DVS

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Item 4 - Continued

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Period	Dissolving Data		Stack Monitoring Results*	
	Mean Cooling Period/(Days)	Curies I-131 Dissolved/day	Curies I-131 Emitted/day	Percent Dissolved I-131 Emitted
12/1/51	45	1630	1.6	0.1
12/8	43	1890	1.3	0.07
12/15	43	1150	1.3	0.5
12/22	47	905	3.5	0.3
12/29	54	55	2.5	0.3
1/5/52	45	1330	1.2	0.08

* Results represent measurements at the 200-West Area Stack.

Item 5

The average activity density from I¹³¹ on vegetation collected from the locations requested from January, 1951, to date is tabulated below:

units of 10^{-6} $\mu\text{c/gm}$

Month	200-West Gate	Richland	Pasco	Battlesnake Mountain
<u>1951</u>				
January	2,140	29	13	24
February	1,100	11	8	17
March	1,400	16	10	*
April	1,500	21	15	45
May	4,600	45	50	27
June	15,000	99	62	800
July	2,400	68	36	70
August	240	3	4	4
September	88	6	5	5
October	140	6	4	10
November	110	5	5	12
December	130	6	< 3	6
<u>1952</u>				
January	1,100	14	10	32
February	2,000	71	26	*

* Location was not sampled during this period.

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Item 6**UNCLASSIFIED**

The average activity density from filterable beta emitters in the air from July, 1951, to date, at the locations requested, is summarized below:

units of 10^{-14} $\mu\text{C}/\text{cc}$

<u>Month</u>	<u>200-West Gate</u>	<u>Richland</u>	<u>Pasco</u>	<u>Gable Mountain</u>
<u>1951</u>				
July	579	39	49	38
August	31	12	18	20
September	51	167	19	24
October *	126	56	89	86
November *	128	91	58	116
December *	60	13	25	45
<u>1952</u>				
January	150	45	18	13
February	199	22	10	28

* Substantial increases during periods denoted by astericks were ascribable to nuclear explosions; the number of radioactive particles in the atmosphere in the Pacific Northwest ranged from 1 to 10 particles per cubic meter in isolated cases during these three months. (Doc. #NW-23517 - "A Report of Particle Contamination, October-December 1951", dated 2/15/52).

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END

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