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HEALTH PHYSICS REPORT

On
Air Activity for The Week Ending February 27, 1949
By

P. E. Brown and M. M. Lingerfelt
March 8, 1949

This document has been approved for release to the public by:

David R. Hamlin 1/30/95
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AIR ACTIVITY FOR WEEK ENDING 2-27-49

Beginning Monday 2-21-49 at 1:00 P.M. the air activity as shown on C.A.M. #1 and #2 increased about 1,000 recorder counts in two hours. This was equivalent to slightly more than 10% of tolerance*. After the sudden two hour rise a steady rise continued until 3:00 A.M. Tuesday at which time a quick rise of 10,800 recorder counts in two hours was recorded on C.A.M. #2. From then on until Thursday afternoon the level of activity continued to be relatively high.

Friday 2-25-49 was normal until 9:00 P.M. when the air activity as recorded on #2 and #5 began to rise. C.A.M. #2 rose 2,200 recorder counts/hour and leveled off. C.A.M. #5 continued to rise slowly until 1:00 A.M. Saturday at which time it blocked out completely until 6:00 P.M. At 7:00 P.M. it rose sharply 6,100 recorder counts/hour.

The highest readings on C.A.M. #5 seemed to occur with an east or north-east wind. The highest activity on C.A.M. #1 was noted during a west or northwest wind. The highest activity was recorded on C.A.M. #2 during a southwest wind or during an inversion. These wind directions seem to bear out the probability that 706-D or 706-C was the source of contamination.

Attached is a graph of the air activity values together with pertinent meteorological data for this period. The values shown on the ordinate axis in recorder counts/hour are for accumulated activity and no correction has been made for decay of the activity being measured.

An estimate was made of the possible exposure of workmen in each of the three areas monitored. The exposure was estimated for each shift and averaged for the week (7 days). The average hourly rise for each shift for the week was obtained by totalling the hourly rises for the day and dividing by 8 then adding the daily averages and dividing by 7.

The average hourly rise for the week for each shift was converted to μc of activity/cc of air by multiplying by the conversion factor 2.04×10^{-11} . The percent of tolerance was obtained by dividing these average concentrations for the week by $3.6 \times 10^{-7} \mu\text{c}/\text{cc}$, the tolerance value for I^{131} for a forty hour week. (See "Tolerance Concentrations of Radioactive Materials" by K. Z. Morgan). The results of these calculations are given below in tabular form:

Average percent of tolerance**, by shifts, for week ending 2-27-49

Shift	C.A.M. #1 North of 706-A	C.A.M. #2 South of 105	C.A.M. #5 East of 717-B
8-4	.52%	1.18%	.12%
4-12	1.69%	1.29%	.49%
12-8	1.75%	1.91%	.214%

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FEBRUARY 20 SUNDAY 21 MONDAY 22 TUES

PRECIPITATION 0.00 0.00

TEMPERATURE MAX-MIN-MEAN 64° 45° 54 5° 65° 39° 52° 67° 47°

TEMPERATURE (UNIVERSITY) 55 5 54 5 5 7 6 6 4 3 5 1 4 6 6 4 4 3 4 5 5 5

WIND DIRECTION

WIND VELOCITY 11 6 10 2 3 6 5 6 6 4 4 6 4 6 6 8 9 1 4 6 1 0 1 2 3 4 5 8 17 21

15,000

14,000

13,000

12,000

11,000

28
29
30
31

↑

AV	23	WEDNESDAY	24	THURSDAY	25	FRIDAY	26
0.00		0.00		0.00		0.00	
57°	57° 32'	44.5°	52° 33'	43.5°	58° 32'	46°	
S	S 53 1 S 5 7 2 1 8	2 4 5 6 2 1 1 2 7 3 6 6 5 1 2 7	S	1 2 1 1 1 5 5 2 9 1 1 1		2 4 5 8 3 7 5 5	
6 10 9 13 10 3 8 9 15 14 8 6 7 6 4 0 4 6 3 2 1 9 3 4 8 0 4 7 11 13 7 10 10 7 8 9 10 4 10 8 14 1							
7 13 7 11 15 4 6 13 12 15 9 6 8 9 6 1 2 5 4 4 1 1 8 7 2 6 1 8 14 9 11 8 14 8 5 8 9 7 6 7 8 11							



RECORDING CENTER

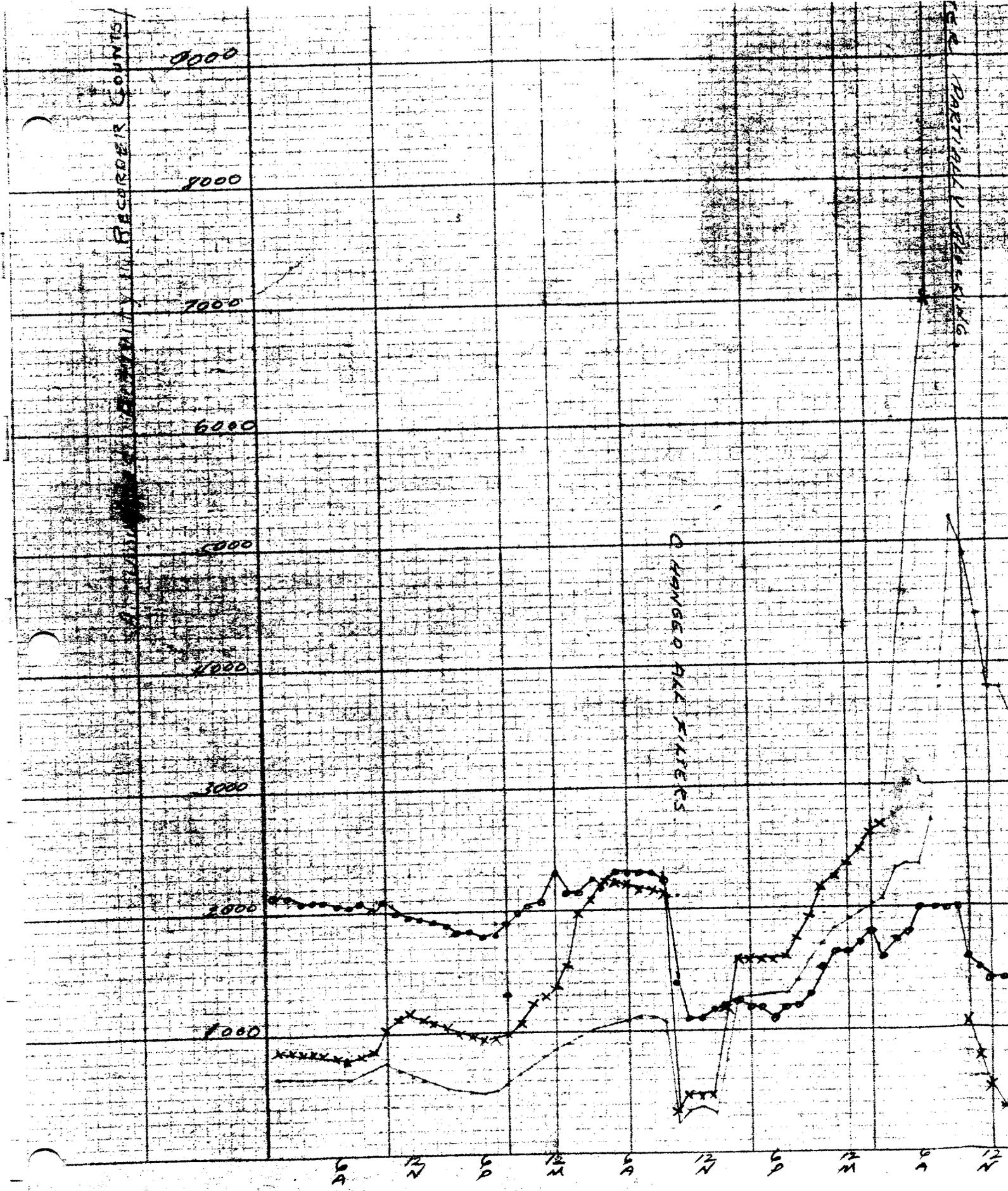
RECORDING CENTER

9000
8000
7000
6000
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4000
3000
2000
1000

CHANGES IN FILTERS

6 A 12 N 6 P 12 M 6 A 12 N 6 P 12 M 6 A 12 N

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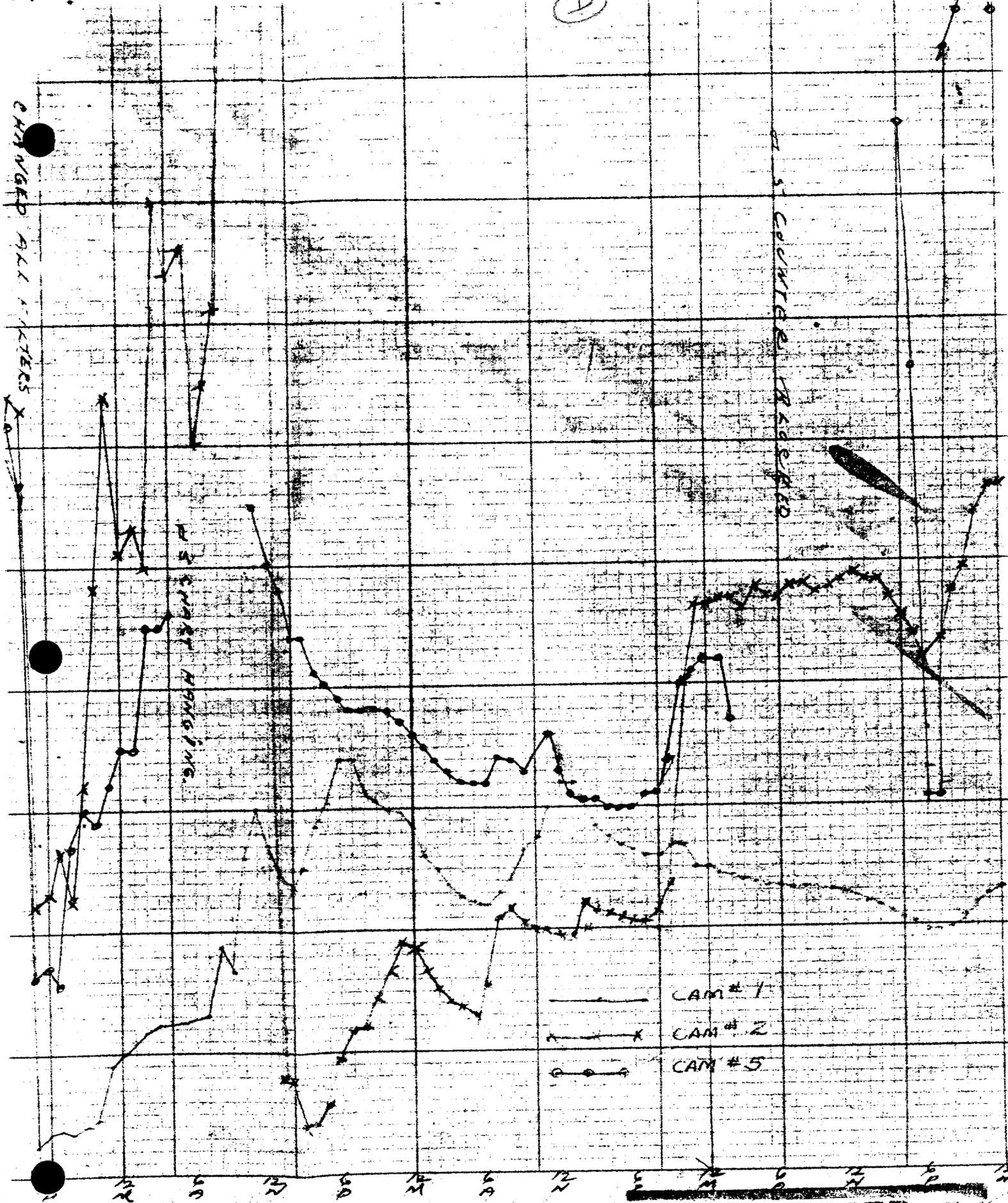


(D)

CHANGE ALL UNITS

AS COVERED BY REPORT

AS SEEN AT HONOLULU



—●— CAM #1
 —x— CAM #2
 —○— CAM #5

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*Rad. Surv.
Atmospheric*

HEALTH PHYSICS REPORT

On

Air Activity for the Week Ending March 26, 1949

By

P. E. Brown and M. L. McKee

April 7, 1949

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APR 15 1959

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R E S T R I C T E D

April 7, 1949

AIR ACTIVITY FOR THE WEEK ENDING MARCH 26, 1949

The air activity during the first part of the production run in Building 706-D was about normal. On Monday, however, the air activity rose rapidly starting about 12:00 Midnight. The wind direction during most of the operation was southwest and south. As a result, CAM #2 was the only monitor that recorded very high activity (see graph of air activity and meteorological data attached).

The activity remained high all day Monday and part of Tuesday. The greatest concentration during this initial rise was 110% of tolerance* at 11:00 A.M., Monday. From 9:00 A.M., Tuesday, until 3:00 P.M., Wednesday, no great concentration was recorded. At this time, a small rise registered on CAM #1 during a period of west wind. At 8:00 P.M., the wind changed to southwest and CAM #5 showed a quick rise of 6500 recorder counts/hour or 154% of tolerance. The tube soon blocked out and no data was recorded until the filter was changed the next day at 9:00 A.M. (The filter counted 208,000 c/m at 21% geometry.) No further air activity above normal was noted on CAM #5 during the week.

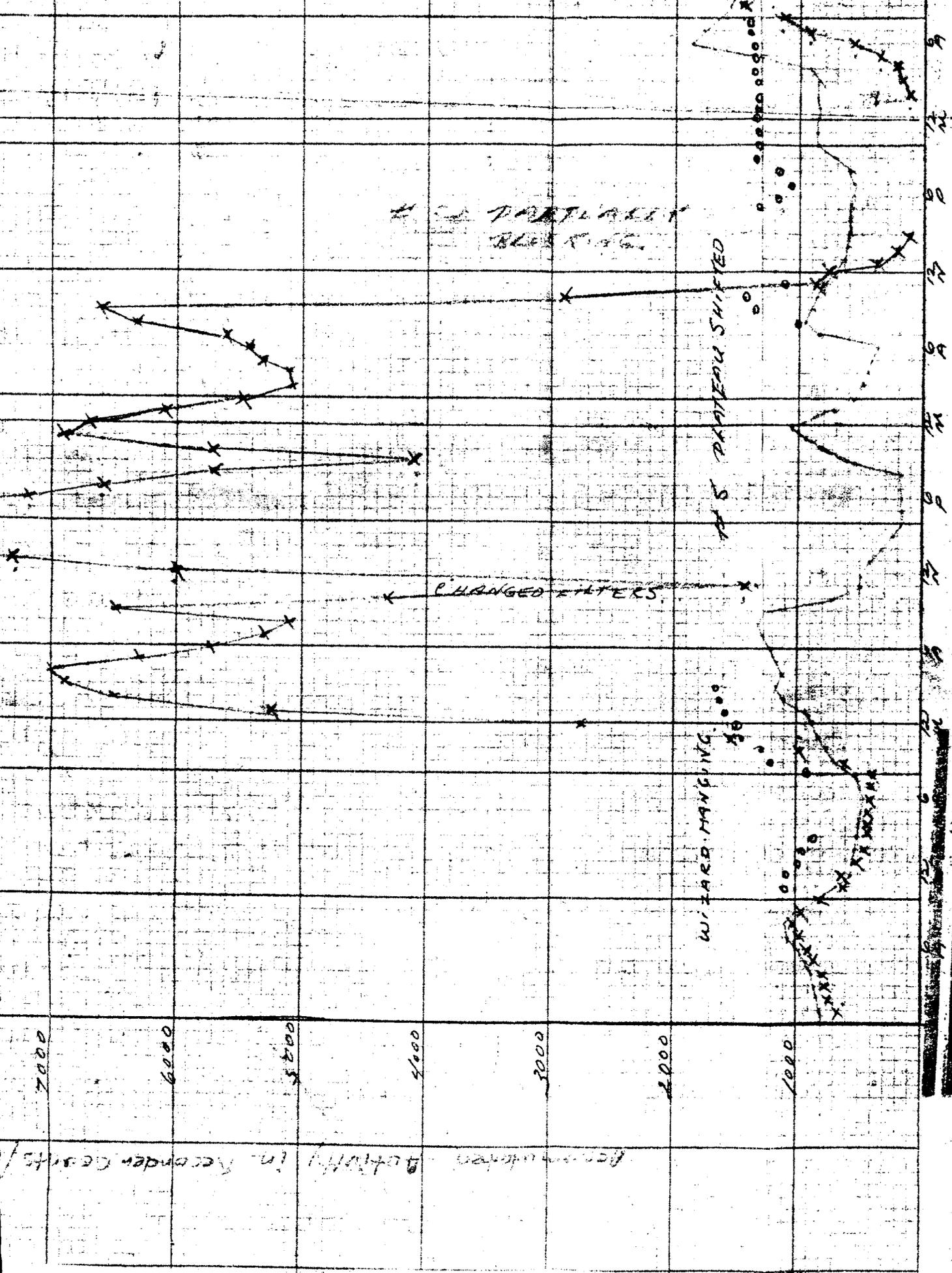
Following is a tabulation of the air activity in per cent of tolerance for a 40 hour week (3.6×10^{-7} $\mu\text{c}/\text{cc}$). The data shows the average per cent of tolerance for each shift in the vicinity of each CAM during the seven days.

<u>Shift</u>	<u>CAM #1</u> <u>North of 706-A</u>	<u>CAM #2</u> <u>South of 105</u>	<u>CAM #5</u> <u>East of 717-B</u>
8-4	0.3%	1.03%	0.13%
4-12	0.49%	1.84%	0.26%
12-8	0.29%	0.85%	0.22%

*Based on the tolerance value of 8.5×10^{-8} $\mu\text{c}/\text{cc}$ for I^{131} for continuous exposure.

R E S T R I C T E D

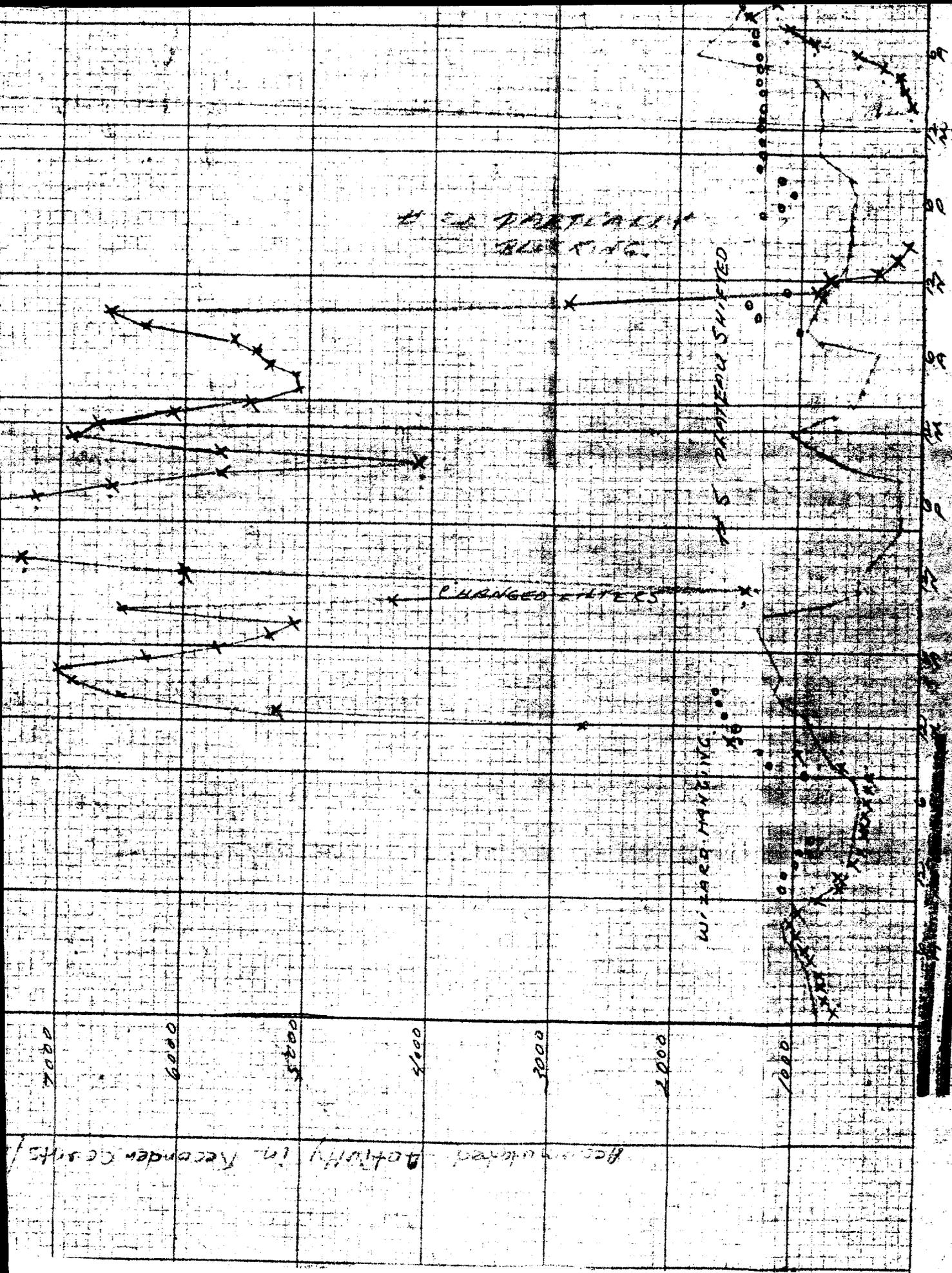
MARCH 1959	20 SUNDAY	21 MONDAY	22 TUESDAY	23 WEDNESDAY	
PRECIPITATION	0.00	0.00	0.00	0.00	
TEMPERATURE MAX - MIN - MEAN	62° 43° 51°	51° 43° 47°	50° 49° 49°	56.5° 52° 51°	
TEMPERATURE INVERSION	7 8 9 10 11 6 7 8 9 10 11	8 9 10 11 12 13 7 8 9 10 11 12	14 15 16 17 18 19 13 14 15 16 17 18	20 21 22 23 24 25 19 20 21 22 23 24	
WIND DIRECTION	110-120	110-120	110-120	110-120	
WIND VELOCITY	4 6 6 6 4 6 7 7 2 3 4 3 3 2 5 3 2 6 8 16 18 12 8 5 6 8 14 18 18 14 18 10 9 7 9 8 7 10 4	4 6 6 6 4 6 7 7 2 3 4 3 3 2 5 3 2 6 8 16 18 12 8 5 6 8 14 18 18 14 18 10 9 7 9 8 7 10 4	4 6 6 6 4 6 7 7 2 3 4 3 3 2 5 3 2 6 8 16 18 12 8 5 6 8 14 18 18 14 18 10 9 7 9 8 7 10 4	4 6 6 6 4 6 7 7 2 3 4 3 3 2 5 3 2 6 8 16 18 12 8 5 6 8 14 18 18 14 18 10 9 7 9 8 7 10 4	4 6 6 6 4 6 7 7 2 3 4 3 3 2 5 3 2 6 8 16 18 12 8 5 6 8 14 18 18 14 18 10 9 7 9 8 7 10 4
WIND VELOCITY	4000	4000	4000	4000	
WIND VELOCITY	8000	8000	8000	8000	



H. S. PARTIALLY
REPLACED

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