

144-11-1111
2008

Mallinckrodt

BOX 6172 LAMBERT FIELD • ST LOUIS, MISSOURI 63145 • 314 AX 1 0540

NUCLEAR

FORMERLY NUCLEAR CONSULTANTS

RADIOPHARMACEUTICALS

November 21, 1967

Director
Isotopes Branch
Division of Materials Licensing
U. S. Atomic Energy Commission
1717 "H" Street
Washington 25, D.C.

Dear Sir:

Thyroid measurements performed on October 24, 1967 revealed an excessive amount of Iodine-131 in the vicinity of the thyroid gland of an individual. The routine survey performed on all individuals whose apparent thyroid burden exceeds 50% of permissible disclosed extensive external contamination of the hair on the back of this individual's neck. He was resurveyed on the same day after his hair was washed. The residual external contamination was estimated to be the equivalent of 20% of the permissible thyroid burden. This resulted in an apparent thyroid burden of 1.45 times permissible or 0.20 microcurie. As a result, this individual was totally restricted from work in laboratory areas.

He again washed his hair before reporting to work the following day. No appreciable external contamination was detected at that time. The measured thyroid burden was 0.99 x permissible or 0.14 microcurie on 10/25/67. (This count indicated that the amount of residual external contamination present the previous day had been underestimated by about an additional equivalent of 30% of permissible.)

It was planned to make additional thyroid burden measurements on each successive day of the week. However, the individual did not report to work again until the following Monday, 10/30/67. He stated that he had been absent due to illness, but he had not so reported on the previous week as required by company policy. A thyroid measurement performed on 10/30/67 indicated the presence of 0.56 times the permissible burden or 0.08 microcurie in the gland. This value was in good agreement with the last previously measured value corrected for decay.

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PDR FOIA
FLOYD96-343 PDR

Information in this record was deleted
in accordance with the Freedom of Information
Act, exemptions 1

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U. S. Atomic Energy Commission
Washington, D.C.

November 21, 1967
Page 2

If only the measured values of 0.87, 1.45, and 0.99 were used to determine the average weekly quantity, the result would be 1.10 times permissible. However, since the individual was not exposed to Iodine-131 since having been restricted and the extrapolated value was in good agreement with the measured value on the following Monday, it was considered reasonable to enter calculated values for the days when the individual did not report to work. The calculated entries were indicated by parentheses on the enclosed thyroid burden record. Inclusion of the calculated values resulted in an average weekly quantity of 0.91 times permissible or an average weekly thyroid burden of 0.13 microcurie.

This represents the best value to estimate the exposure to the thyroid gland of this individual during the week ending 10/29/67. It is our conclusion that no overexposure to the thyroid gland was incurred by this individual subject to your agreement that inclusion of the calculated values is an acceptable procedure. We would greatly appreciate a ruling on this procedure for future reporting purposes.

The individual was terminated on 10/30/67 as a result of failure to report and as a result of failure to follow radiation safety procedures.

We would also like to take this opportunity to report that the average thyroid burdens of all other individuals working in the Iodine-131 areas have steadily declined over the past several weeks as a result of the stringent enforcement of radiation safety procedures, and through application of the special corrective measures previously reported. As of this date, no one in our laboratories shows greater than 0.035 μc thyroid burden and the average of all persons who are routinely working with or near I^{131} processes is less than 0.01 μc .

Sincerely yours,

Donald W. Soldan

Donald W. Soldan, Manager
Health Physics Department

DWS:cd
encl.

cc: Manager, Region III
Division of Compliance, USAEC
Suite 410
Oakbrook Professional Building
Oak Brook, Illinois 60523

CW-NU-13099-10/6"

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1967 FRACTIONAL PERMISSIBLE IODINE-131 THYROID BURDEN
(1 FPTB = 0.14 Microcuries of Iodine-131)

DATE	10-2	10-9	10-16	10-23	10-30								
WEEK	1	2	3	4	5	6	7	8	9	10	11	12	13
MON	.57	.38	.12	.87	.56								
TUES	.80	.36	.39	1.45									
WEDS	.76	.26	.53	.99									
THURS	.58	.40	.52	(.90)									
FRI	.44	.22	.44	(.51)									
SAT				(.74)									
AVERAGE	.43	.32	.40	.91									

Sun (.67)

4th QUARTERLY AVERAGE _____ COMMENTS () - Calculated values OK

Restricted totally on 10-24. Absent on 10-26, 27 & 28 & 29.
Calculated entries for these dates. Reported to work
on 10-30, and terminated on 10-30.

NAME OMITTED

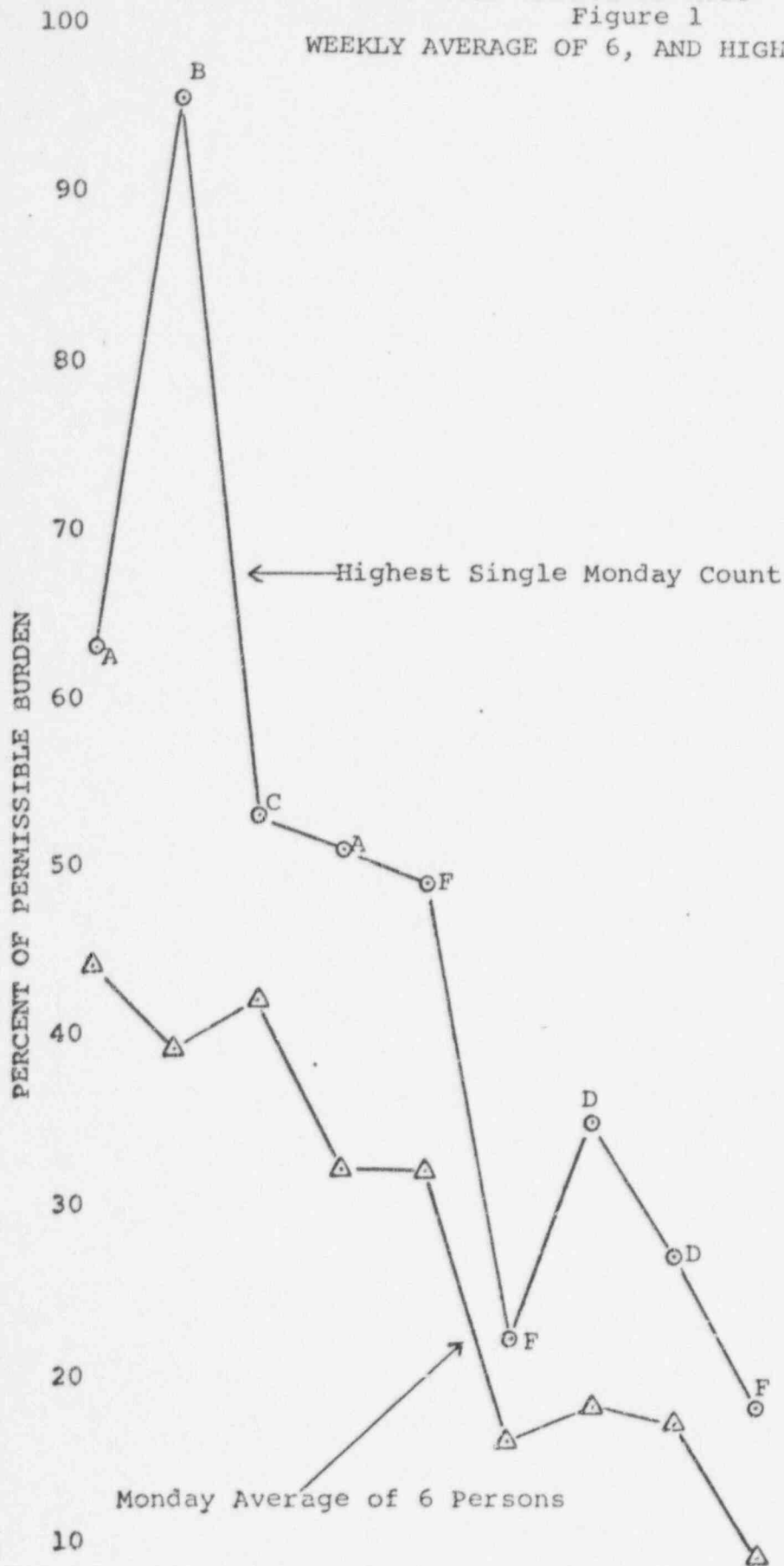
SOC. SEC. NO. OMITTED

The individual covered by this letter is [REDACTED]

En6

MONDAY MORNING "BEFORE WORK" THYROID COUNTS FOR ^{131}I
 FOR (PRODUCTION EMPLOYEES MOST TEN FOUND HIGH
 Figure 1

WEEKLY AVERAGE OF 6, AND HIGHEST SINGLE



¹³¹I Fractional Permissible Thyroid Burden

Table II
Weekly Average

1967 Week Begin. Monday	PERSON DESIGNATION						
	A	B	C	D	E	F	(G)
10/2	.73	.75	.55	.39	.42	.06	.05
10/9	.58	.83	.38	.32	.48	.60	.09
10/16	.54	.48	.46	.23	.42	.44	.22
10/23	.51	.49	.33	.20	.25	.48	.15
10/30	.39	.32	.30	.17	.24	.37	.12
11/6	.27	.17	.19	.26	.18	.26	.06
11/13	.14	.06	.14	.34	.15	.34	.05
11/20	.21	.03	.16	.28	.12	.21	.01
11/27	.14	.04	.19	.14	.10	.14	.00

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10/23	.51	.49	.33	.20	.25	.48	.15
10/30	.39	.32	.30	.17	.24	.37	.12
11/6	.27	.17	.19	.26	.18	.26	.06
11/13	.14	.06	.14	.34	.15	.34	.05
11/20	.21	.03	.16	.28	.12	.21	.01
11/27	.14	.04	.19	.14	.10	.14	.00

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10/30	.39	.32	.30	.17	.24	.37	.12
11/6	.27	.17	.19	.26	.18	.26	.06
11/13	.14	.06	.14	.34	.15	.34	.05
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11/27	.14	.04	.19	.14	.10	.14	.00

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Weekly Average

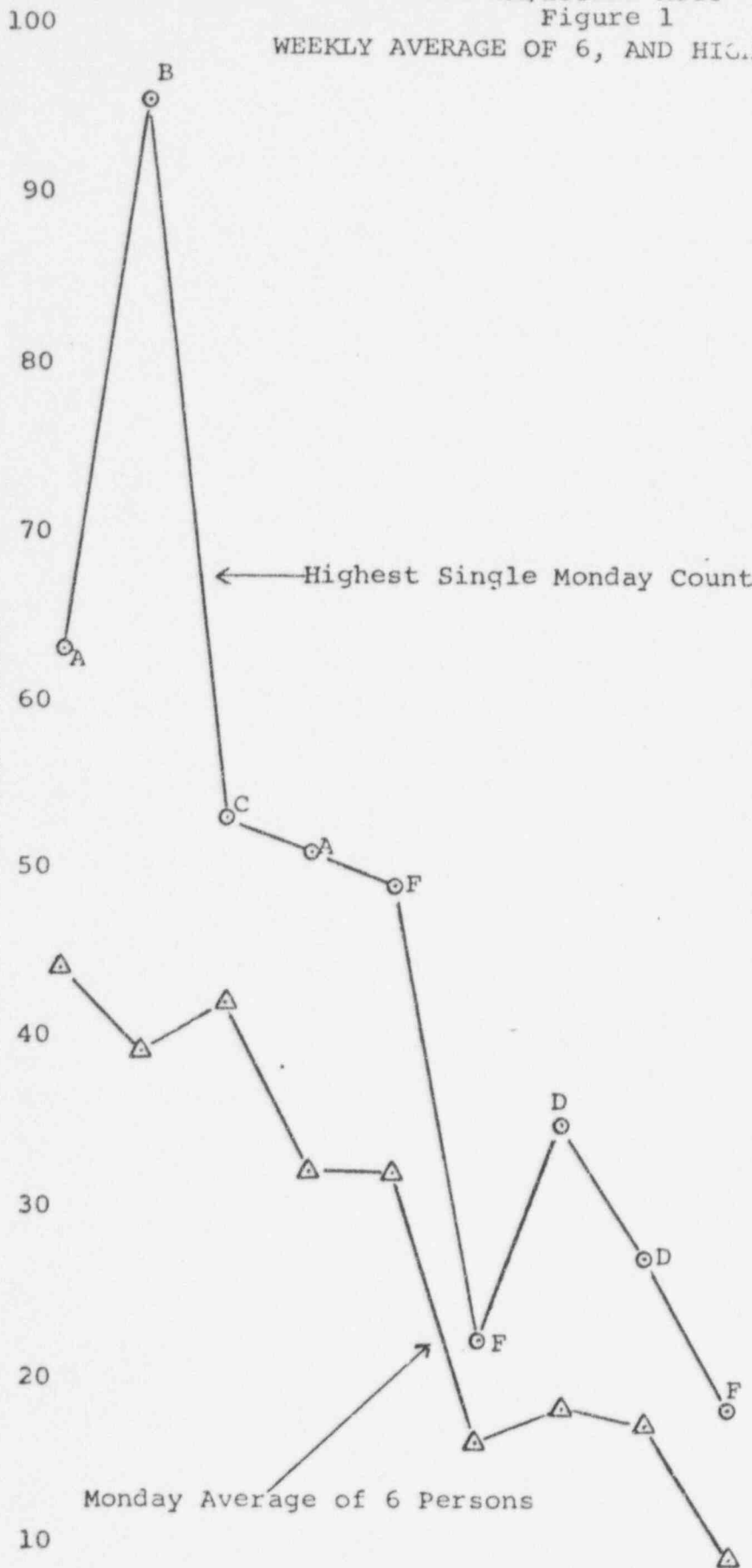
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11/20	.21	.03	.16	.28	.12	.21	.01
11/27	.14	.04	.19	.14	.10	.14	.00

MONDAY MORNING "BEFORE WORK" THYROID COUNTS FOR 1941
 FOR ('RODUCTION EMPLOYEES MOST TEN FOUND HIGH

Figure 1

WEEKLY AVERAGE OF 6, AND HIGHEST SINGLE

PERCENT OF PERMISSIBLE BURDEN

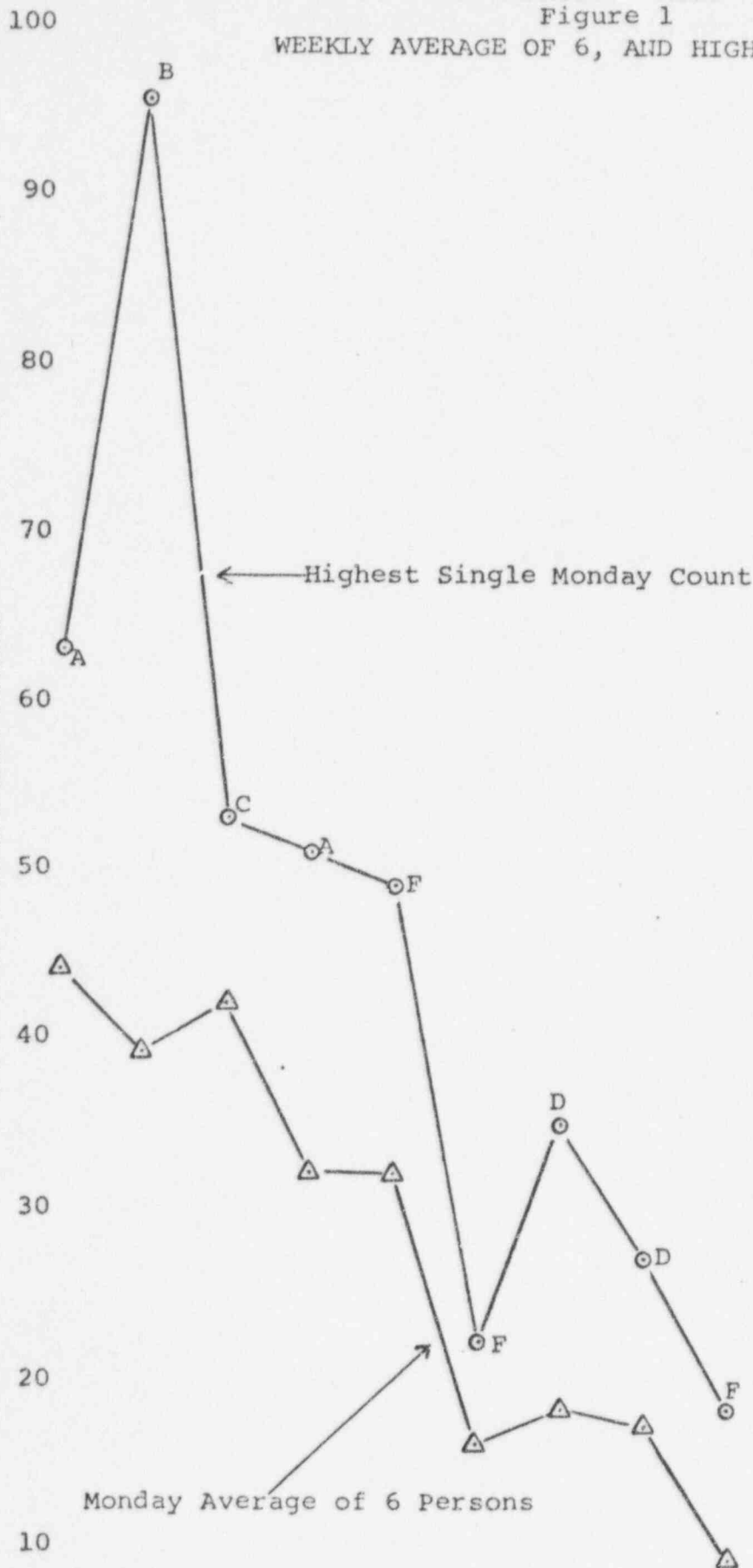


MONDAY MORNING "BEFORE WORK" THYROID COUNTS FOR 1941
 FOR (PRODUCTION EMPLOYEES MOST TEN FOUND HIGH

Figure 1

WEEKLY AVERAGE OF 6, AND HIGHEST SINGLE

PERCENT OF PERMISSIBLE BURDEN



0

10/2

9

16

23

30

11/6

13

20

27

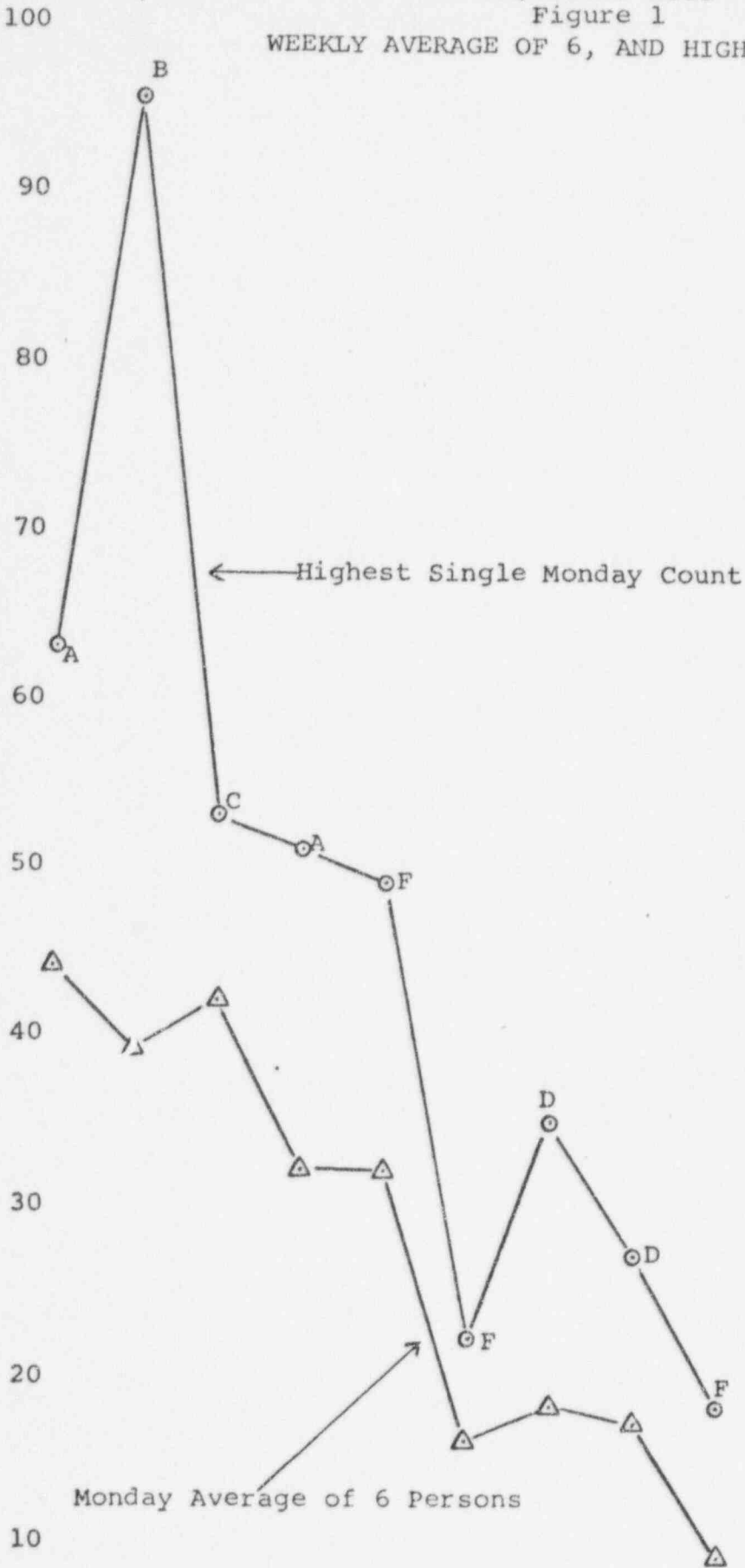
Week 1967

MONDAY MORNING BEFORE WORK THYROID COUNTS FOR 1967
 FOR PRODUCTION EMPLOYEES MOST TEN FOUND HIGH

Figure 1

WEEKLY AVERAGE OF 6, AND HIGHEST SINGLE

PERCENT OF PERMISSIBLE BURDEN



0
 10/2 9 16 23 30 11/6 13 20 27

Week 1967

¹³¹I Fractional Permissible Thyroid Burden
For 6 Production Workers Most Frequently "High"
Plus One Production Area "Unexposed" Person (G)

Table I

Percent Burden Measured Monday Before Work

1967 Date	PERSON DESIGNATION							(G)
	A	B	C	D	E	F	Average A thru F	
10/2	.63*	.38	.61	.52	.42	.09	.44	.05
10/9	.47	.96*	.22	.28	.29	.08	.39	.06
10/16	.41	.47	.53*	.26	.43	.41	.42	.25
10/23	.51*	.28	.32	.22	.25	.31	.32	.08
10/30	.46	.28	.31	.10	.22	.49*	.32	.12
11/6	.16	.14	.15	.10	.18	.22*	.16	.04
11/13	.14	.07	.10	.35*	.10	.34	.18	.06
11/20	.19	.06	.14	.27*	.17	.21	.17	.01
11/27	.05	.01	.09	.14	.05	.18*	.09	.03

*Denotes High Weekly Value Entered in Figure 1

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11/13	.14	.07	.10	.35*	.10	.34	.18	.06
11/20	.19	.06	.14	.27*	.17	.21	.17	.01
11/27	.05	.01	.09	.14	.05	.18*	.09	.03

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