

MASTER

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DUQUESNE LIGHT COMPANY
SHIPPINGPORT ATOMIC POWER STATION

TEST RESULTS

DLCS 2310302
T-612394

PERIODIC RADIATION SURVEY

CORE I, SEED 1

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CORE I, SEED 1

Purpose

To determine the radiation level inside the concrete enclosures but outside the Reactor Plant Containers after shutdown following plant operation. This information was necessary to determine possible build up of contamination in these areas during the life of the plant.

Conclusions

Radiation levels in the IAC, IBD Boiler Chamber enclosures and in the Reactor Chamber enclosure were on the average at a higher radiation level than the previous performance of this test. The highest reading obtained was 7.5 mr/hr and the lowest reading was .03 mr/hr with a mean radiation level of 3.76 mr/hr as compared to a 1.37 mr/hr mean radiation level for the previous performance of this test.

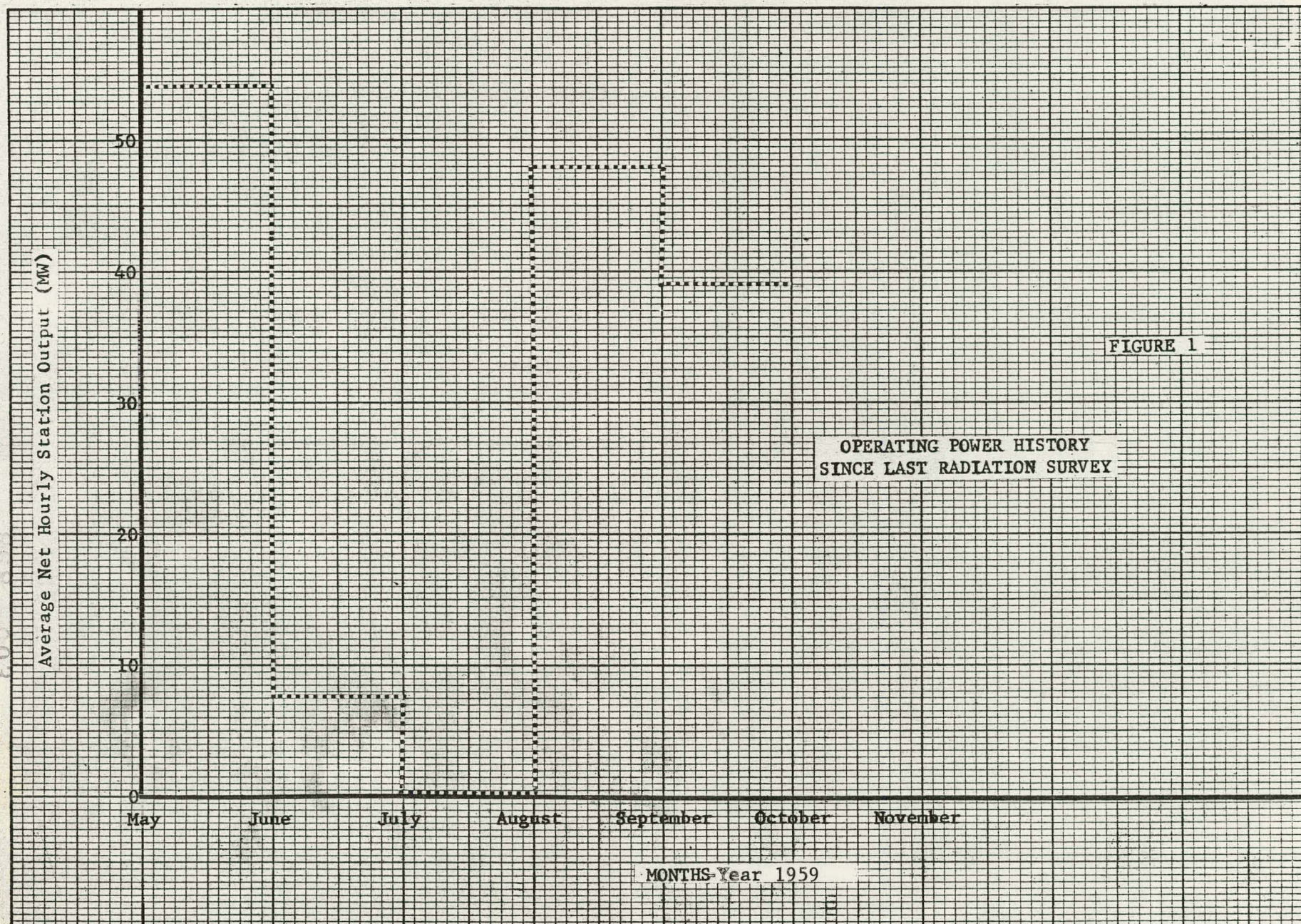
Description of Test Equipment and Test Procedure

With the reactor plant shut down, portable survey meters were used to measure the radiation levels inside the concrete enclosure around the Reactor Plant Containers.

Results

DLCS 2310302, Periodic Radiation Survey, was performed October 7, 1959. Location of the survey points are shown in Figures 3, 4 and 5 and their radiation levels are listed in Tables I, II and III. Calibration data for the portable survey meters are listed in Table IV. The power history is shown in Figure 1.

There are a total of six points below the average radiation level by a factor of three and one point above the average radiation level by a factor of three. These points are indicated by an asterisk (*) on Tables I, II and III. Figure 2 is a decay curve of the radiation level at point 1 in the reactor chamber enclosure. Point 1 was monitored every half hour for three hours and every hour for the next five hours. The decay indicates that the level is due to an isotope or a composite of isotopes with an approximate 76 hour half life. These radiation readings were taken at chest level which is approximately four feet above floor level.



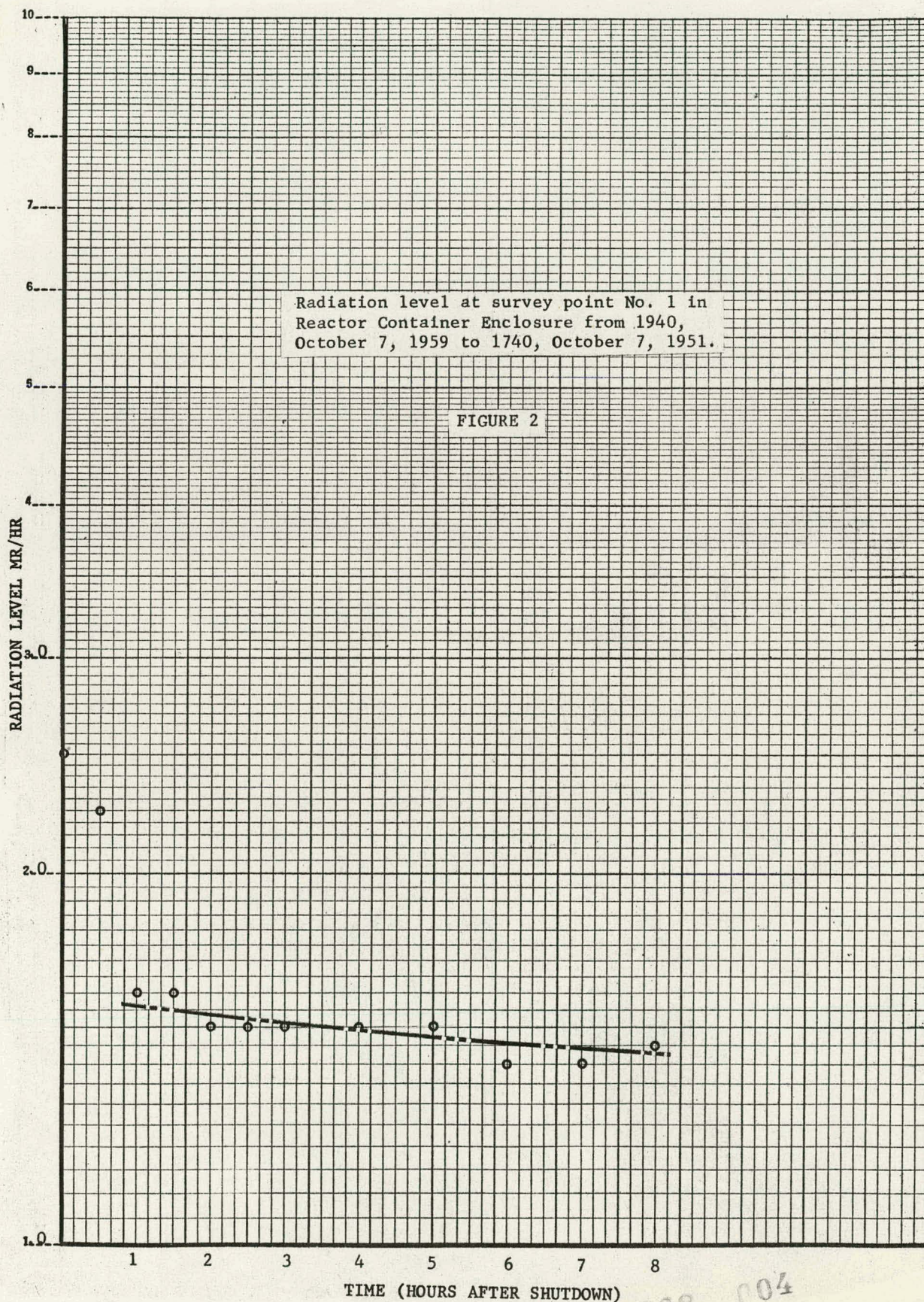


FIGURE 3

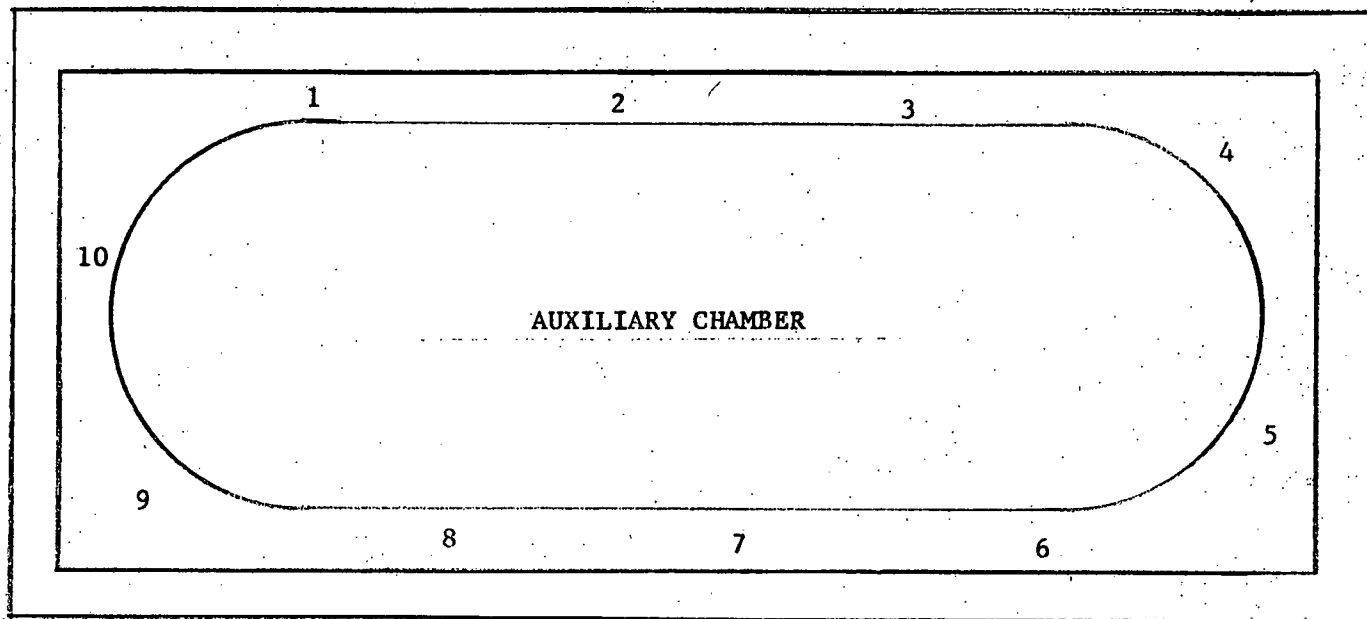


TABLE I

METER - THYAC NO. 947

Point	Time	mr/hr
1	1003	.03
2	1003	.03
3	1004	.04
4	1004	.03
5	1004	.03
6	1005	.09
7	1005	.65 *
8	1006	.065
9	1006	.03
10	1006	.07

Floor and air lock platform 0.03 mr/hr

* Above average radiation level by a factor of three (3).

FIGURE 4

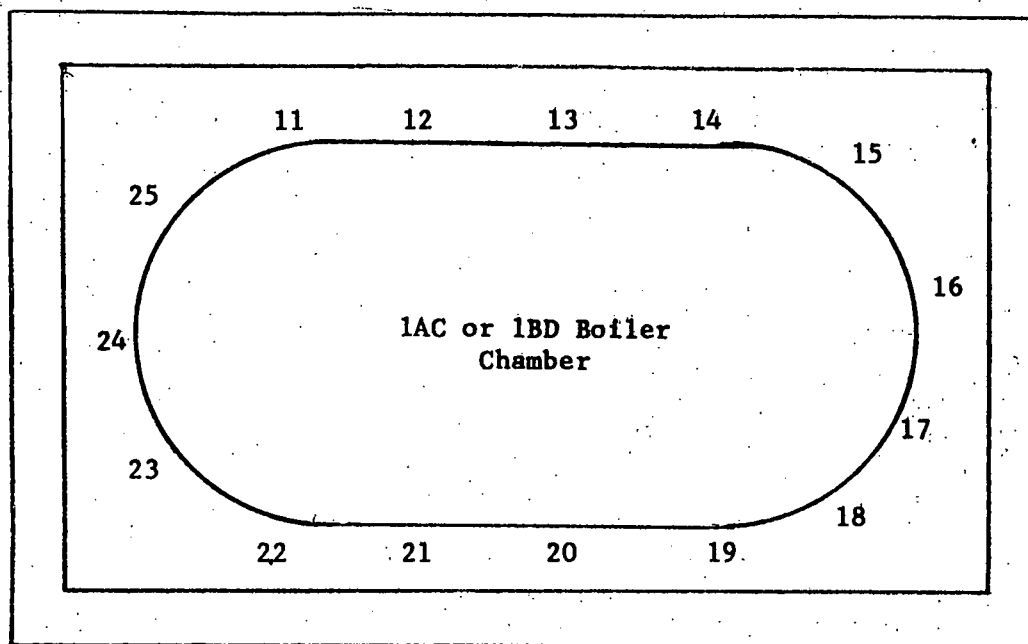


TABLE II

Meter Jordon No. 733
1AC Boiler Container
Enclosure

Point	Time	mr/hr
11	0920	4.0
12	0919	5.25
13	0919	3.25
14	0918	0.50 *
15	0918	3.25
16	0925	5.0
17	0924	7.5
18	0924	5.0
19	0923	0.5 *
20	0923	3.0
21	0922	6.0
22	0922	3.2
23	0921	3.0
24	0921	0.5 *
25	0920	2.5

Meter Thyac No. 974
1BD Boiler Container
Enclosure

Point	Time	mr/hr
11	0930	0.7 *
12	----	0.7 *
13	----	3.0
14	----	3.0
15	----	4.0
16	----	1.0
17	----	1.5
18	----	0.7 *
19	----	0.8
20	----	1.0
21	----	1.3
22	----	1.0
23	----	1.7
24	----	1.7
25	----	1.0

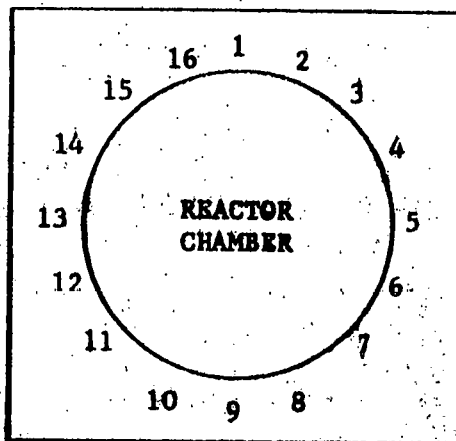
Floor and Air Lock Platform 0.03 mr/hr

* Below average radiation level by a factor of 3

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FIGURE 5



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TABLE III

METER THYAC NO. 947

REACTOR HOT SPOT MONITORED
FOR DECAY POINT 1
METER THYAC NO. 947

Point	Time	Mr/hr	Time	mr/hr
1	0940	2.50	0940	2.50
2	-----	1.75	1010	2.25
3	-----	1.75	1040	1.60
4	-----	1.75	1110	1.60
5	-----	1.75	1140	1.50
6	-----	1.75	1210	1.50
7	-----	1.75	1240	1.50
8	-----	1.75	1340	1.50
9	-----	1.75	1440	1.50
10	-----	1.75	1540	1.40
11	-----	1.75	1640	1.40
12	-----	1.75	1740	1.45
13	-----	1.75		
14	-----	1.75		
15	-----	1.75		
16	-----	1.75		

Changed
Meter
Scale

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TABLE IV

Calibration Data, Radiation Detectors

Thyac No. 974

Calibrated - October 3, 1959

1.1 Millicurie Co ⁶⁰ Distance (Inches)	Actual mr/hr Reading	Calculated mr/hr Reading
12.00	15.0	15.0
37.75	1.5	1.5
119.25	0.15	0.15

Jordan No. 733

Calibrated - October 5, 1959

38 Millicurie Co ⁶⁰ Distance (Inches)	Actual Reading r/hr	Calculated Reading r/hr
6.80	1.5	1.5
8.33	1.0	1.0
11.78	0.5	0.5
	mr/hr	mr/hr
11.78	500	500
16.66	250	250
26.35	100	100
37.26	60	50
83.31	10	10

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PERIODIC RADIATION SURVEY; (cont'd)

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Date

6-17-60