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3-2495

JAN 19 1951

RECORD CENTER FILE

Classification Code Charge to

Project 5586
B. Authority
Classification

Route List By W. C. Kay Date 2-24-61

BEST AVAILABLE COPY

Date 5-1-46

Subject Vegetation Contamination For
First Quarter Of 1946

RECORD CENTER Classification Cancelled (Change to)

Declassified

By Authority of

Doc, May '73

O. Cleary 9-14-88

To File

From J. W. Healy

Copy No.

W. C. Kay

700 Area File

BEFORE READING THIS DOCUMENT, SIGN AND DATE BELOW:

7-3938, 7-3939, 7-3940, 7-3941, 7-3942, 7-3943, 7-3944, 7-3945, 7-3946, 7-3947, 7-3948

W. C. Kay 5/14/46

Markerson 5-1-46

B. U. Poca 11/1/46

B. U. Poca 11/15/46

B. U. Poca 5-7-47

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SPECIAL RE-REVIEW
FINAL DETERMINATION
DECLASSIFICATION CONFIRMED

BY A. E. Barber DATE 2-25-82

BY O. Cleary DATE 9-14-88

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3-3495

Copy #1 - H.M.Parker
2 - C.C.Gamertsfelder-
C.M.Patterson
3 - J.W.Healy-L.D.Turner
4 - F.P.Seymour-C.R.E.Merkle
N.L.Michelson-300 Area file
5 - F.B.Vaughan-J.D.Ellett
6 - W.C.Kay-700 Area file
7 - Yellow file
8 - Pink file

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*Charts moved by
file "fox"*

May 1, 1946

THIS DOCUMENT CONSISTS OF 3 PAGES

No. 16 OF 18 COPIES. SERIES MA

VEGETATION CONTAMINATION FOR
FIRST QUARTER OF 1946

Photo 2-3938 4-18-46
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The deposition of I^{131} on vegetation at the Hanford Plant has led to a possible hazard to livestock grazing on this vegetation. The hazard has been evaluated (1) and checked by actual measurements on animals from this region. (2) The present tolerance for grazing land is 0.2 $\mu\text{C}/\text{kg}$ of vegetation. (1)

The Site Survey group has measured the extent of this contamination at various locations. The attached maps and charts are presented to illustrate the trend of the contamination.

I. Procedure

From the vegetation samples collected at each location, a one-gram sample was mounted on a sample card, and counted for 5 - 60 minutes on a mica window beta set. A correction factor for self-absorption of the betas in the sample was determined by placing known amounts of iodine on uncontaminated vegetation and counting the sample. This led to a correction factor of three for self-absorption.

The amount of iodine accumulated by various plants varies from species to species. A test made in February 1946 indicated that dead grass or weeds were more active than live vegetation. As a result, most of the samples from that time have consisted of such dead grass or weeds. The reproducibility of the specimen collection and sampling procedure, although not perfect, proved to be adequate for the present purposes. Samples of like material from the same location were usually consistent to $\pm 30\%$, with occasional "flyers" wrong by a factor of two.

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L.D.Turner }
J.V.Healy } to File

-2-

5/1/46

II. On Reservation

Figure I illustrates the change in the amount of active iodine coming from the two Separations Plant stacks. The contamination does not depend on this factor alone, however, since atmospheric conditions appear to play a large part in the actual deposition.

Figures II and III present the data obtained from surveys of the reservation in February and March of 1946. Very little change is apparent. An estimate of the total iodine present in the area mapped gave 500 curies on February 19, and 400 curies on March 19, 1946.

Figure IV presents data obtained from ionization chambers placed at various spots on the reservation. The close correlation between the decrease in reading over certain time periods and the eight day half-life of iodine indicates that a large portion of the reading on these chambers comes from ground contamination and not from atmospheric radiation.

Figure V represents the variation in vegetation contamination at certain selected points on the reservation. This chart is given for comparison with the values off the reservation.

III. Off-Area

Figures VI and VII illustrate the changes noted at points in close proximity to the reservation. The high maximum in December 1945 has been attributed mainly to weather conditions at this time. The decrease from this maximum follows an eight day half-life, with the exception of several slight increases due to further deposition of iodine.

The results of a series of monthly surveys of the territory within 50 - 100 miles of the plant are given in figures VIII, IX, X and XI. During this period, the contamination north of the Plant has continuously increased.

LDT/JMH:swc

L. D. Turner

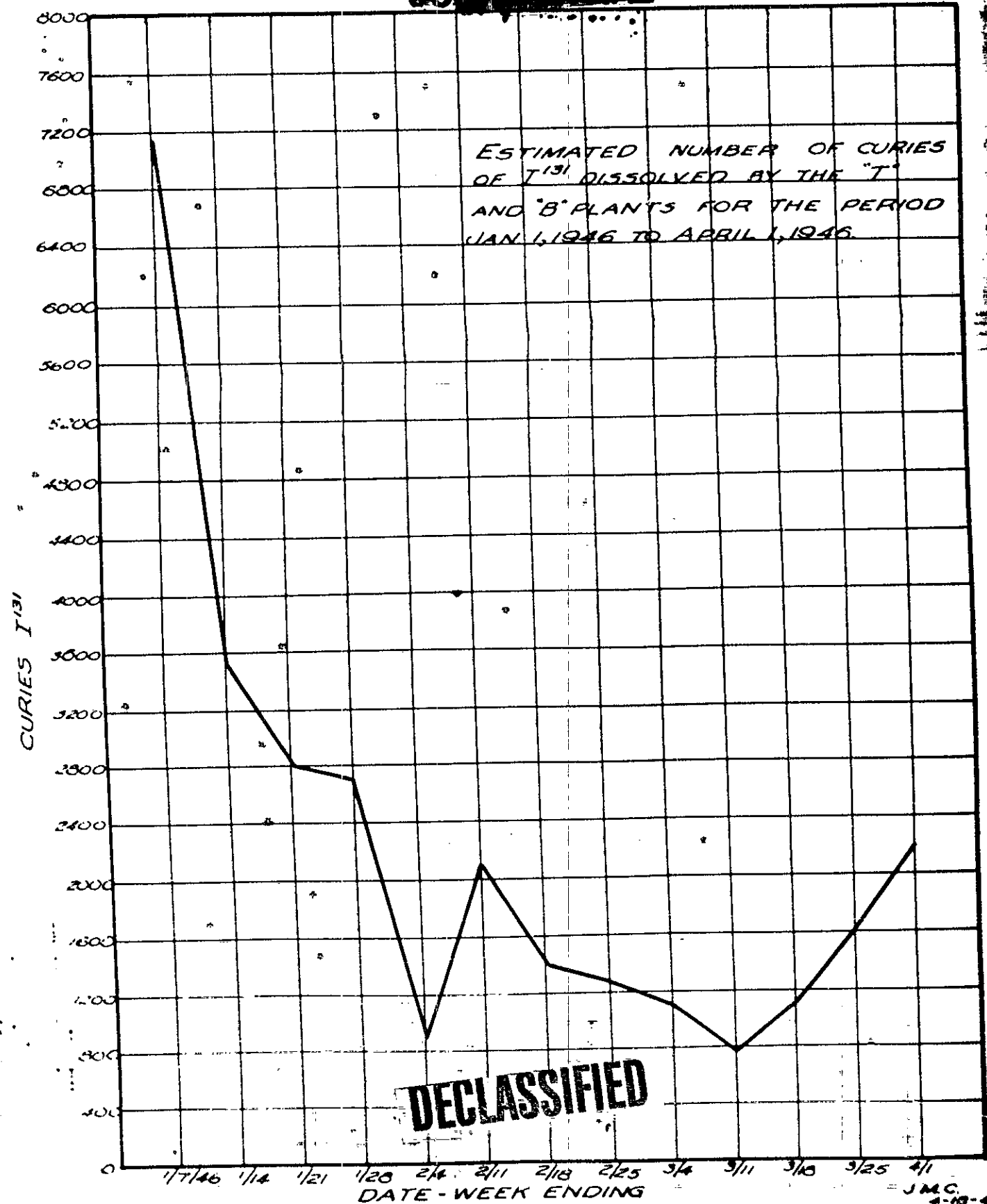
J. V. Healy

- REFERENCES:
- (1) "Tolerable Concentration of Radio-Iodine on Edible Plants" Doc. 7-3217, 1/14/46
H.M. Parker to W.D. Norwood
 - (2) "I¹³¹ Accumulation in the Thyroid of Sheep Grazing near H.E.W." Doc. 3-3455, 3/1/46
K.E. Herde to J.V. Healy

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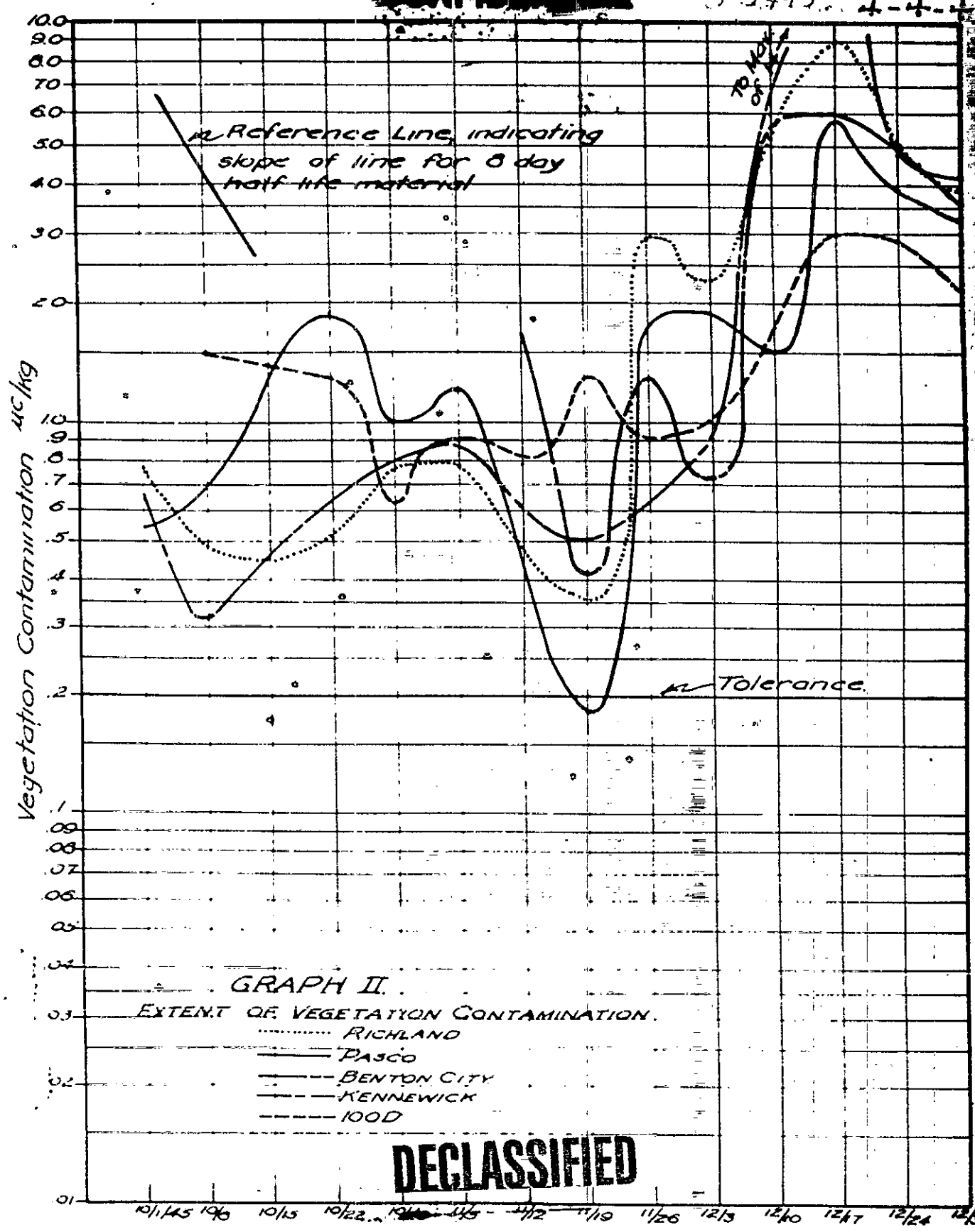
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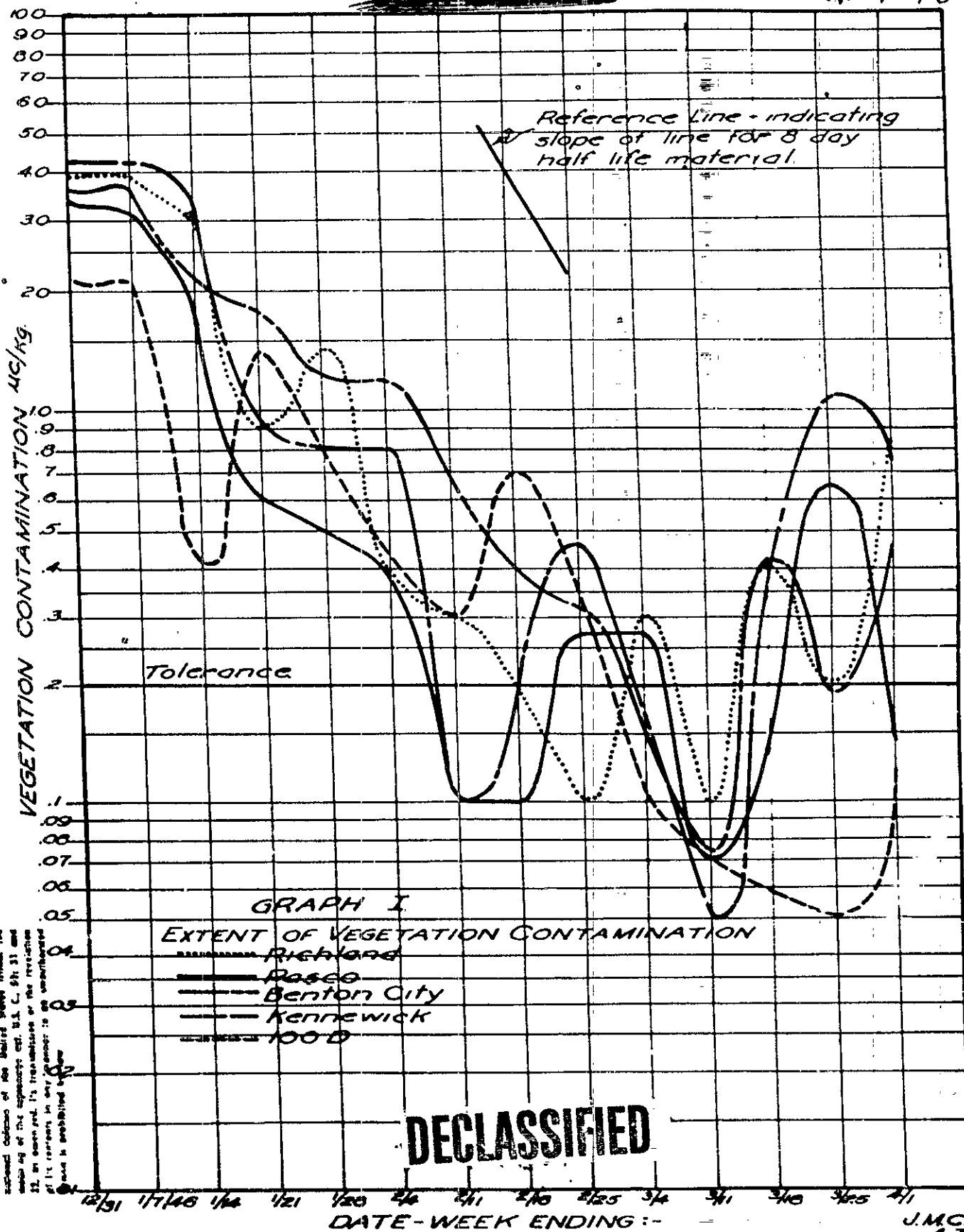
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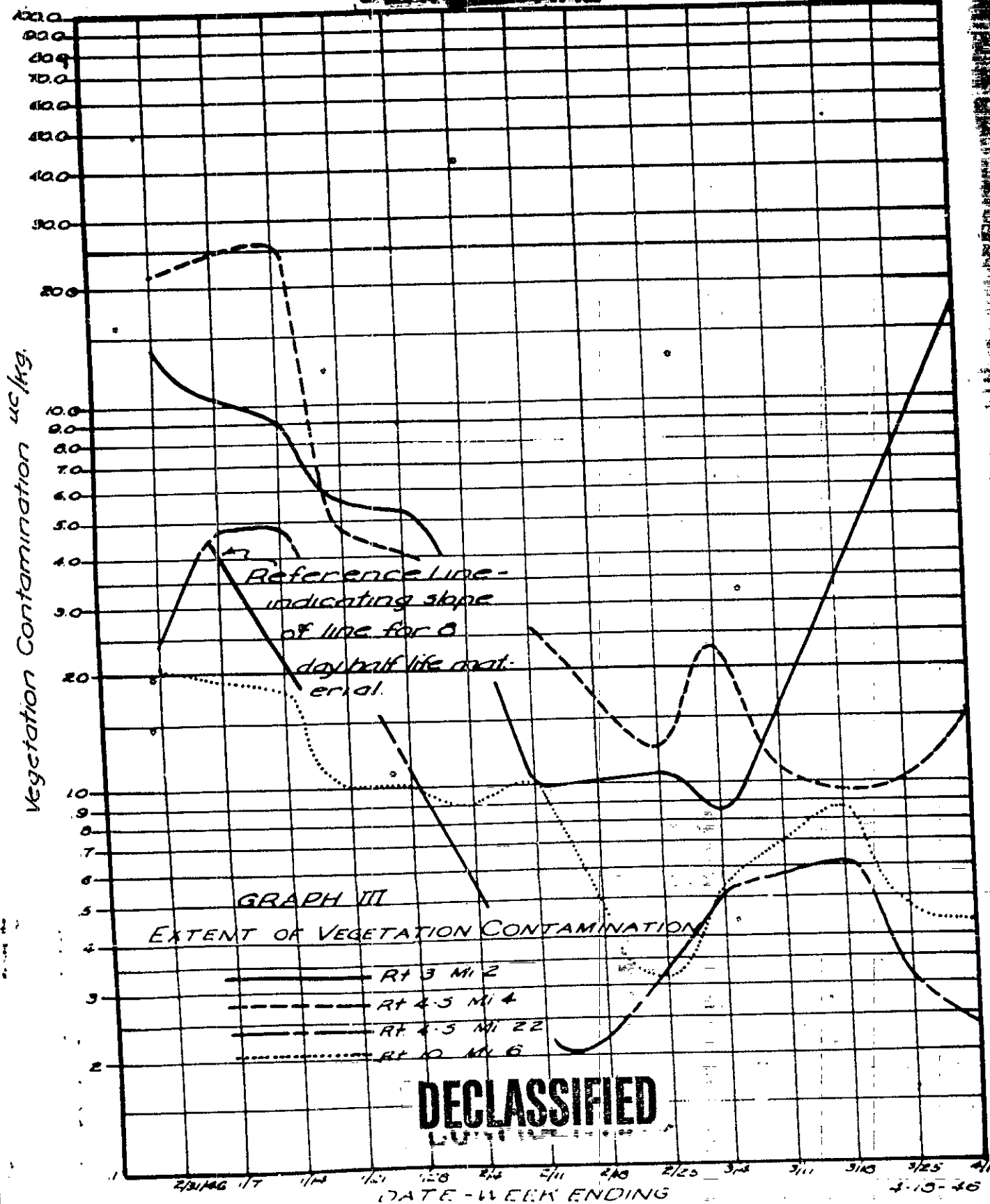
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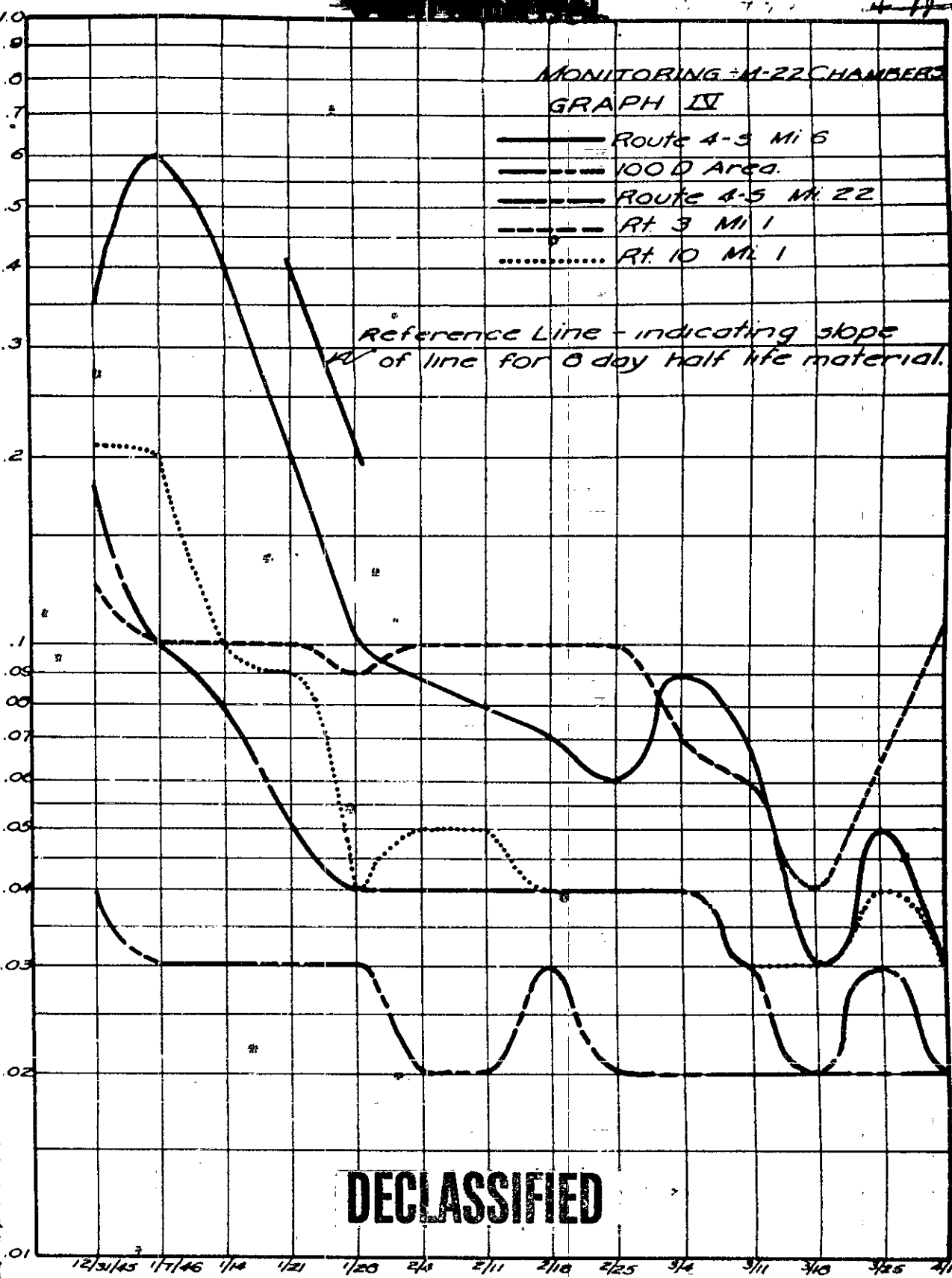
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IONIZATION CHAMBER READING - mrep/hr

MONITORING - M-22 CHAMBERS
GRAPH IX

- Route 4-5 Mi 6
- 100 D Area
- Route 4-5 M. 22
- Rt 3 Mi 1
- Rt 10 M. 1

Reference Line - indicating slope
of line for 8 day half life material.



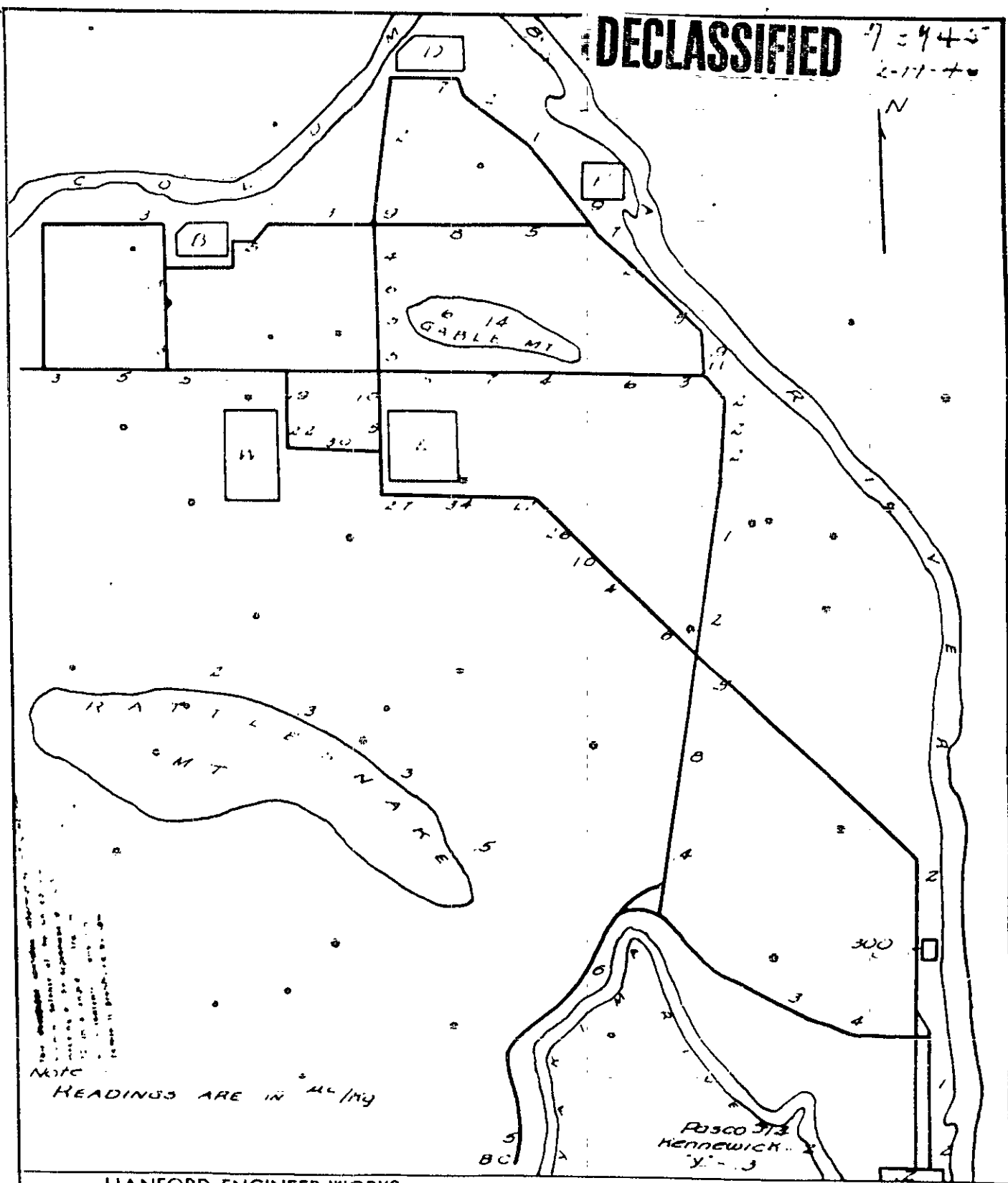
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4-10-46

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7-945
2-17-46



NOTE
READINGS ARE IN $\mu\text{Ci}/\text{sq}$

POSCO ST
HENNEWICK ST
Y-3

HANFORD ENGINEER WORKS

APPROVED

DATE 2-19 46

DRAWN BY U.M.C.

Extent of Vegetation
Contamination

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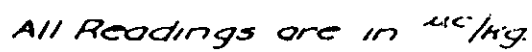
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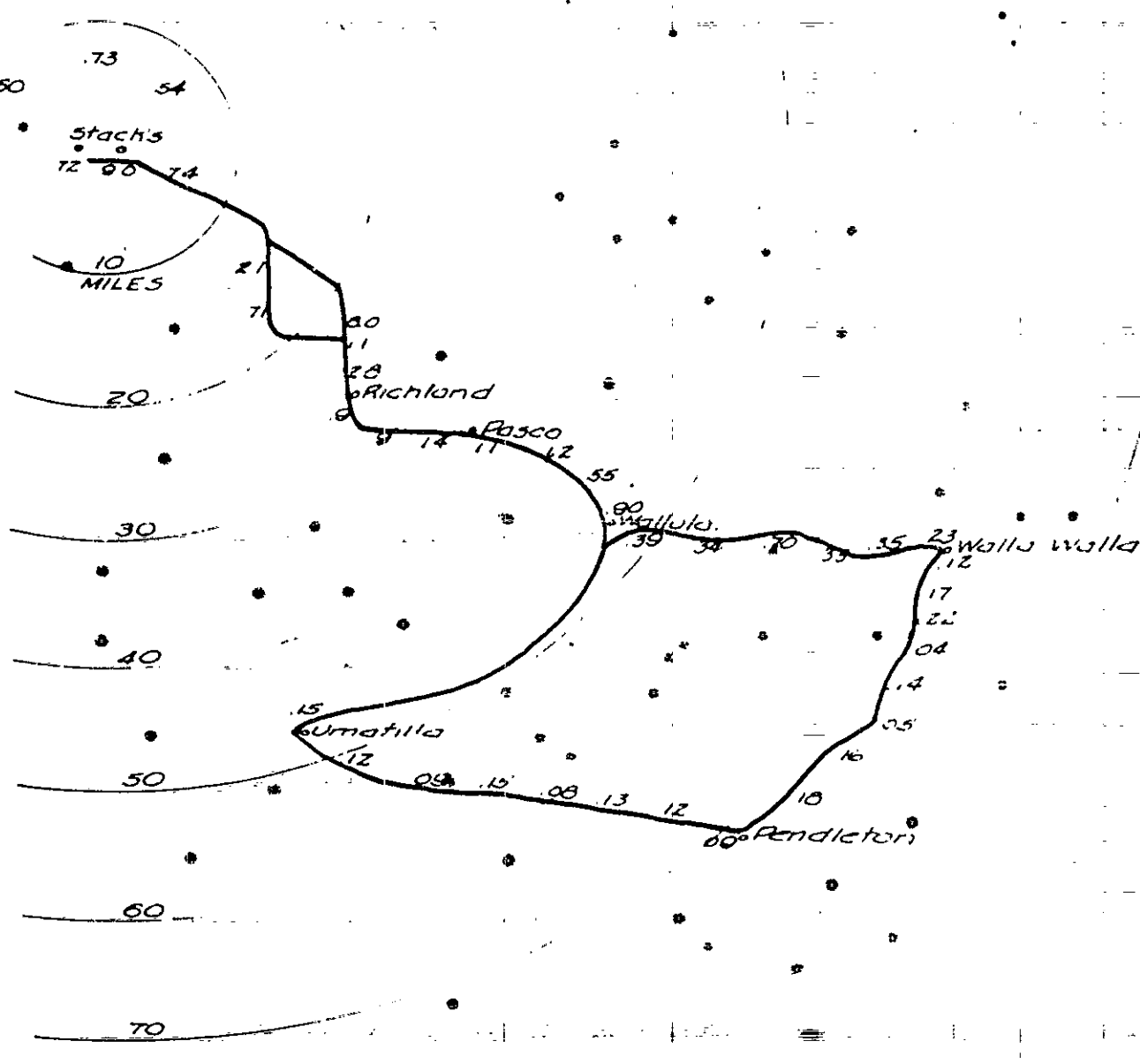
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7-14-46
J. J. J.



80 ALL READINGS ARE $\mu\text{C}/\text{KG}$

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HANFORD ENGINEER WORKS

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DATE / 6-16

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EXTENT OF VEGETATION

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BLDG NO. 2707

CONTAMINATION

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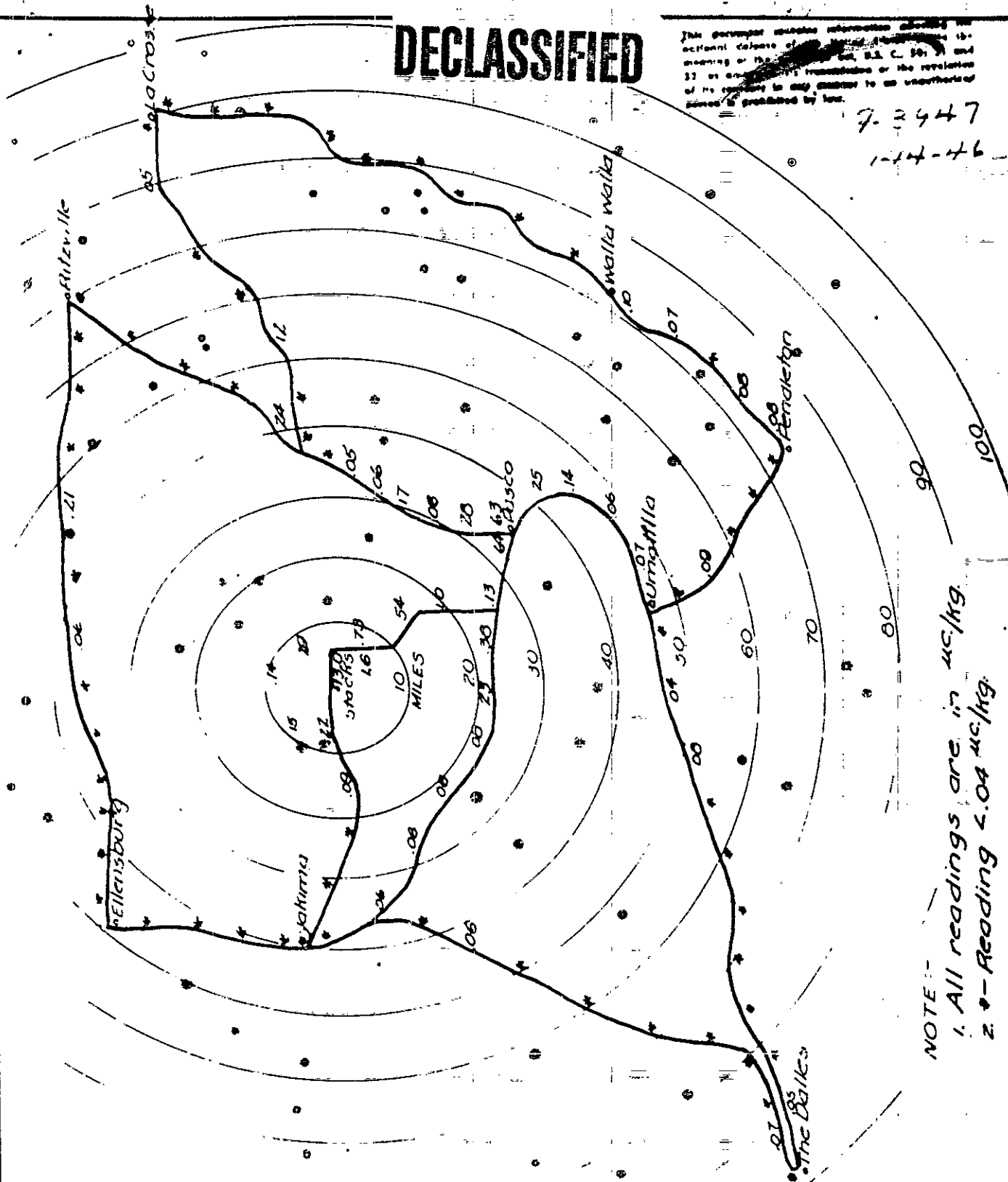
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7-3447

1-14-46



NOTE:
1. All readings are in $\mu\text{C}/\text{kg}$.
2. - Reading $2.04 \mu\text{C}/\text{kg}$.

HANFORD ENGINEER WORKS

APPROVED

DATE 1-14-46

DRAWN BY J.M.C.

EXTENT OF VEGETATION

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BLDG NO. 2707

CONTAMINATION

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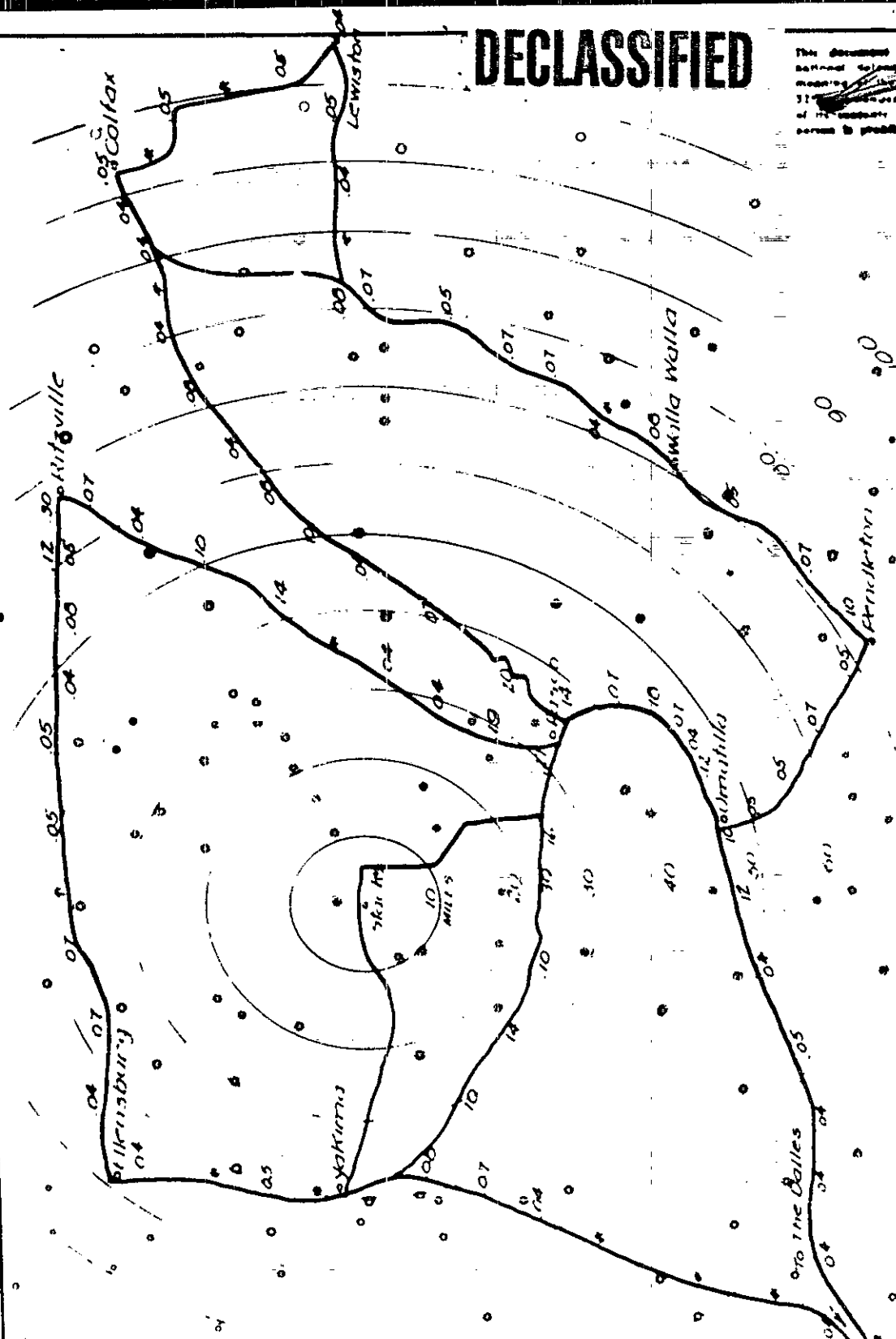
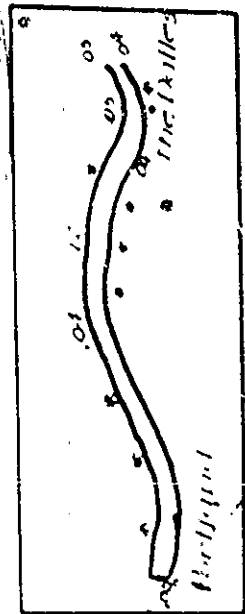
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7-3946
2-9-46

NOTE: ALL readings are $\mu\text{c}/\text{mg}$
2 - Reading $4.04 \mu\text{c}/\text{mg}$



HANFORD ENGINEER WORKS

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DATE 2 2 46

DRAWN BY M.C.

EXTENT OF VEGETATION

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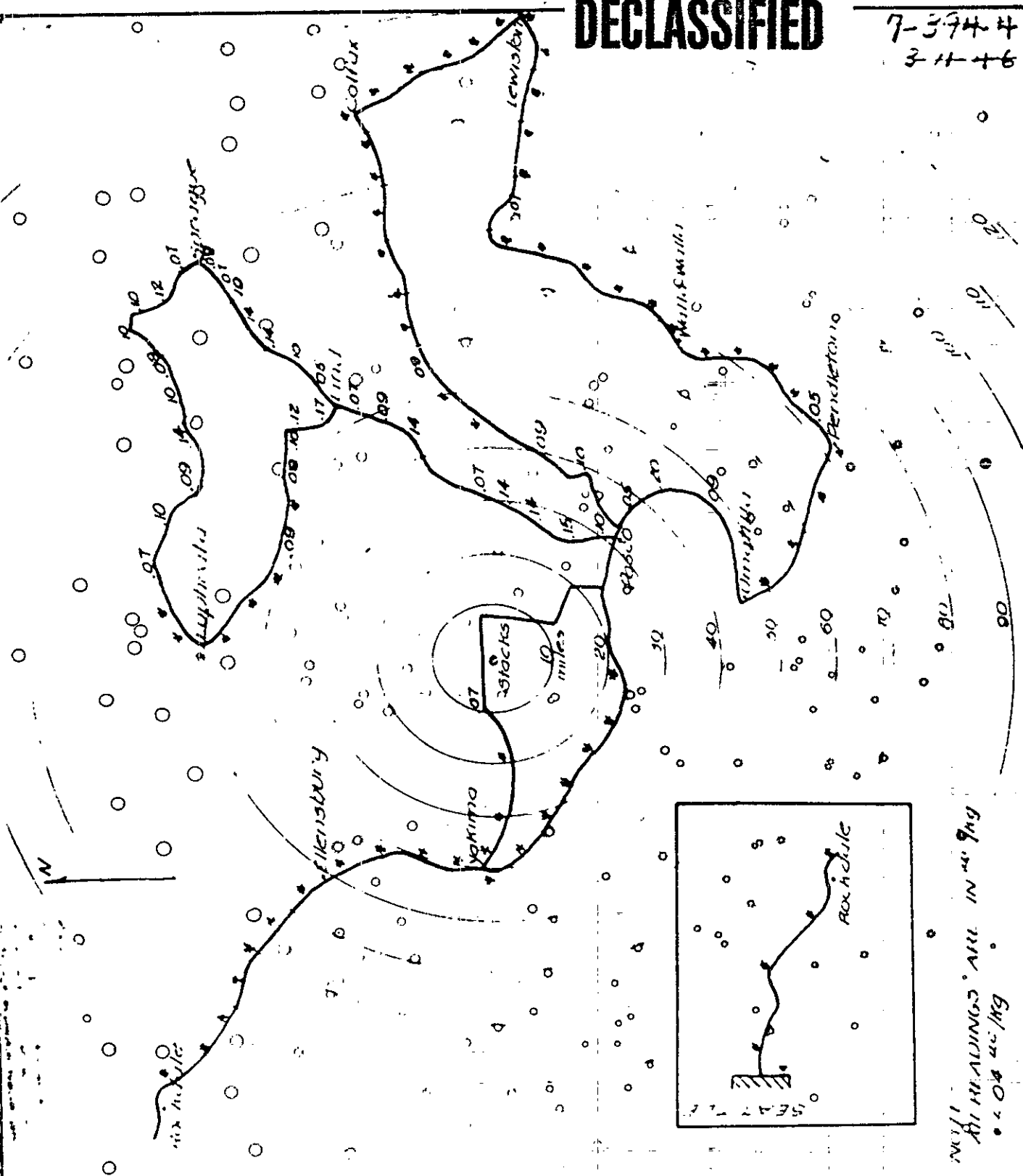
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HANFORD ENGINEER WORKS

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DRAWN BY J.M.G.
BLDG NO 2707E

EXTENT OF VEGETATION
CONTAMINATION

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