

THE BABCOCK & WILCOX COMPANY
POWER GENERATION GROUP

Reference 7

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THE-79-193

To | G. A. MEYER, MANAGER, THERMAL HYDRAULIC ENGINEERING UNIT

From | *J.H.S.*
J. H. SONES, THE UNIT, EXT. 3219

SCS 603-5

Cust. | TMI2 | File No. or Ref.

Subj. | ADIABATIC HEATUP RATES | Date
APRIL 10, 1979

This letter is cover and customer and was subject only.

FIGURE 1 SHOWS THE ADIABATIC HEATUP RATE AS A FUNCTION OF TIME IN DAYS AFTER THE LOSS OF FEEDWATER EVENT. THIS CURVE ASSUMES INSTANTANEOUS CORE UNCOVERAGE (NO HEAT REMOVAL FROM THE FUEL). THE CALCULATION WAS PERFORMED FOR A FUEL ROD ASSUMED TO BE INTACT.

FIGURE 2 SHOWS THE TIME IN HOURS TO HEAT THE FUEL FROM 200°F TO 1000°F USING THE HEATUP RATES FROM FIGURE 1.

FIGURE 3 SHOWS THE DECAY HEAT (CORE POWER) AS A FUNCTION OF TIME (SEE REFERENCE).

REFERENCE: MEMO, J. R. BURRIS TO J. D. CARLTON, "DECAY HEAT CURVE," APRIL, 2, 1979, NSS-6.

549161

JHJ/CDB

CC: J. S. TULENKO
F.E. UNIT MANAGERS
CORE HOT SPOT/FLOW BLOCKAGE TASK FORCE

Q/A Both method and calculations have been independently checked and found to be correct.

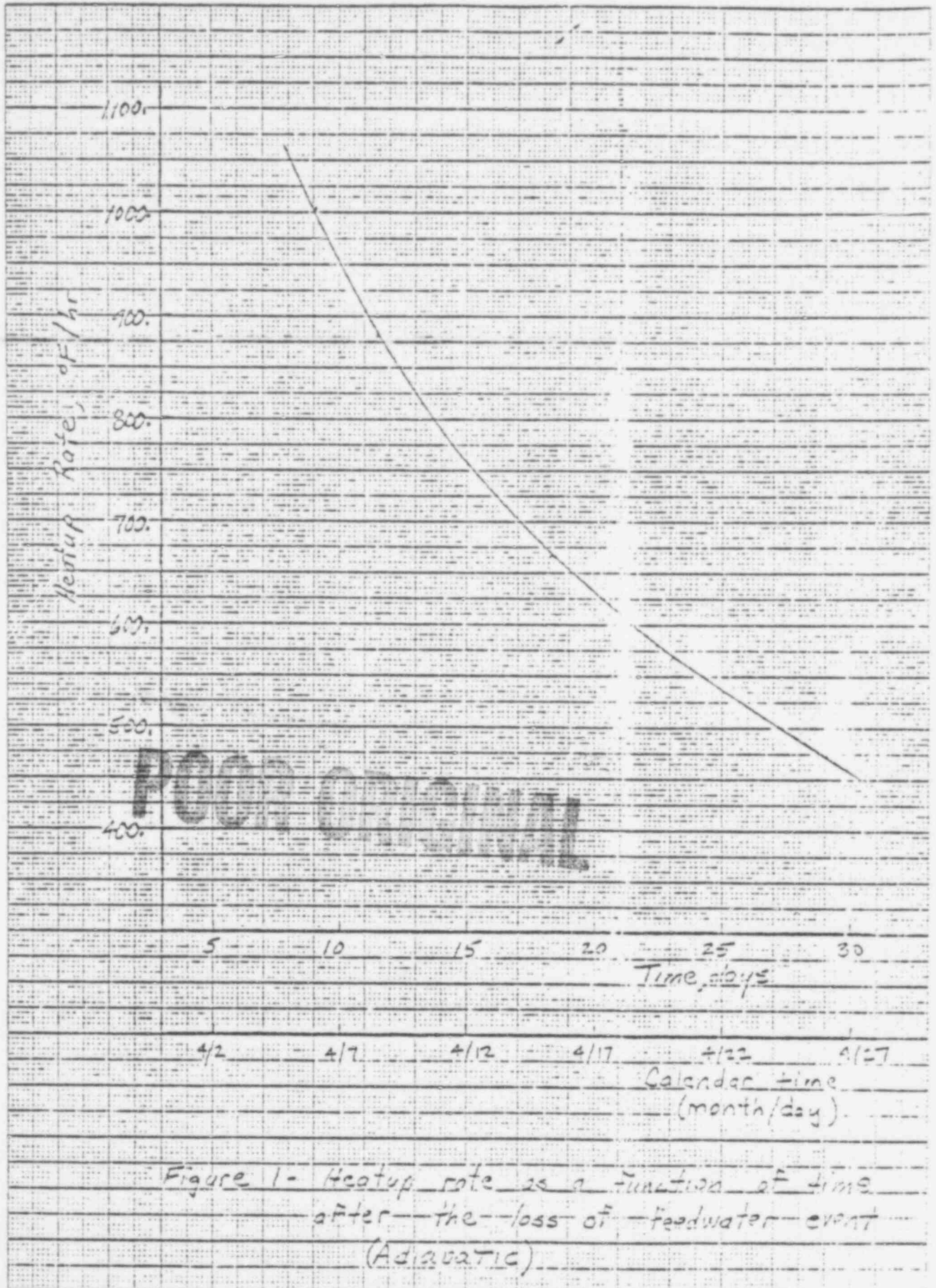
Robert T. Chung 4/10/79

7907260558

P

461510

K-E IS A 1/8 TO THE CENTIMETER IN 1/3 CM
HUMPHREY & ESSER CO. NEW YORK



POOR ORIGINAL

5 10 15 20 25 30
Time, days
4/2 4/7 4/12 4/17 4/22 4/27
Calendar time
(month/day)

Figure 1 - Heatup rate as a function of time after the loss of feedwater event (Adiabatic)

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16 X 10 TO THE CENTIMETER 18 X 25 CM
K-E NEUFEL & ESSEN CO. MADE IN U.S.A.

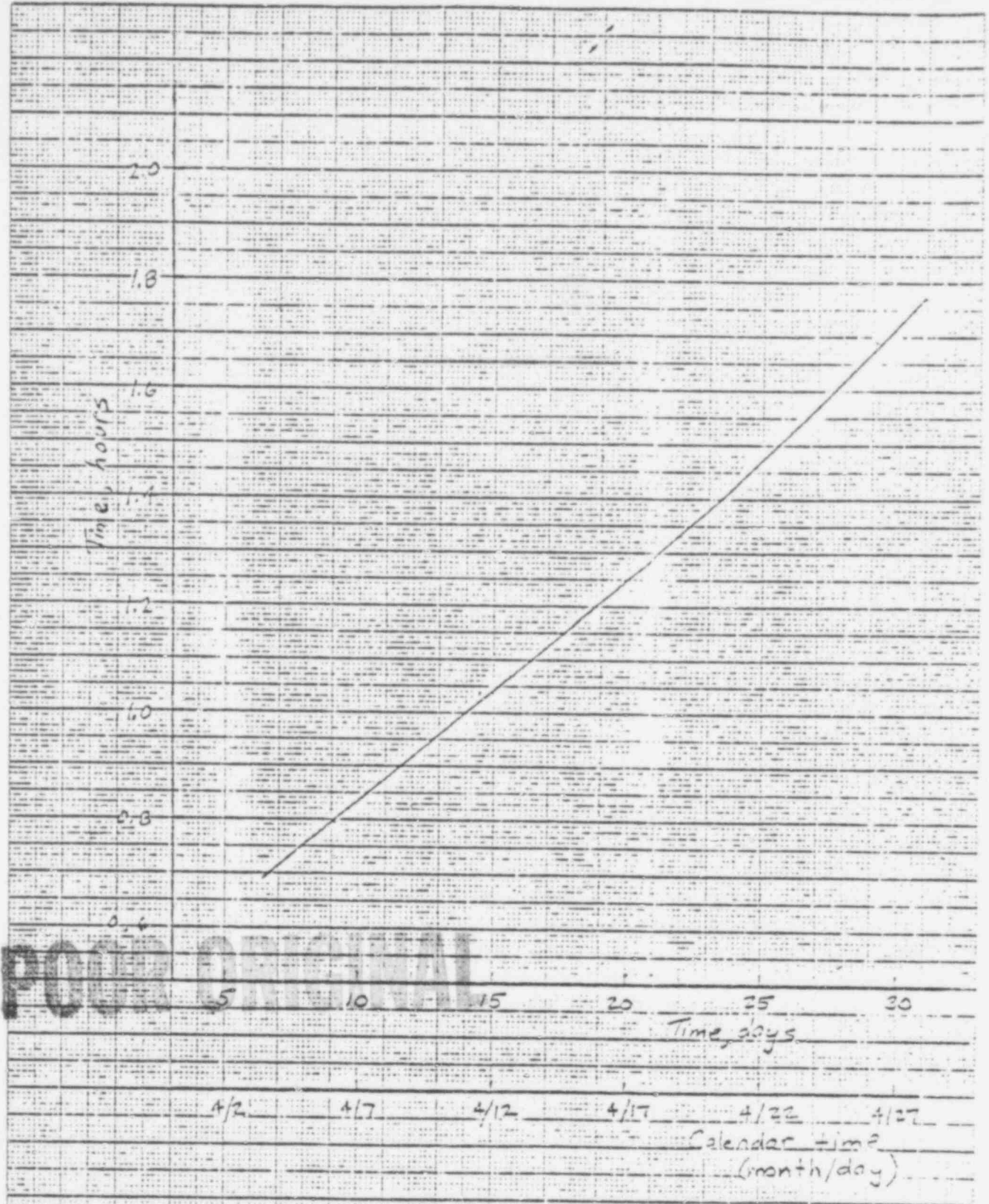


Figure 2 - Time to heat up from 200°F to 1000°F (adiabatic)

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4/10/79

POOL OPERATIONAL

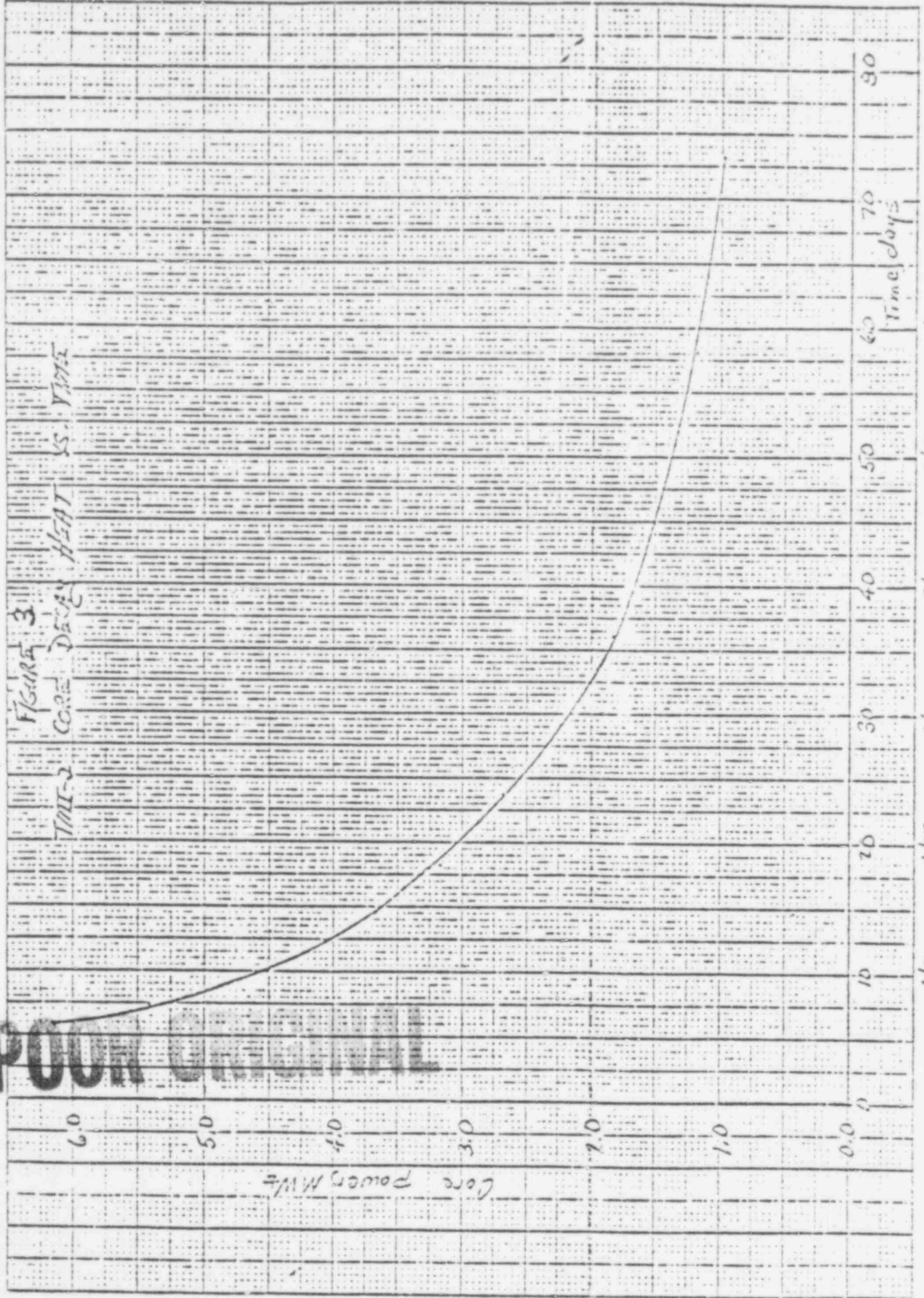


FIGURE 3
CORE DEGRADATION
HEAT VS. TIME

Time days
0 10 20 30 40 50 60 70 80
1/7 1/17 4/17 5/7 5/17 5/17 6/13

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2.42
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