

THE BABCOCK & WILCOX COMPANY  
POWER GENERATION GROUP

PRELIMINARY

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To	C. C. ENGLAND	
From	A. B. JACKSON	805 663
Cust.	TMI-2	File No. or Ref.
Subj.	REQUIRED FLOW FOR CORE COOLING	Date 12:40 A.M. APRIL 10, 1979

This letter is cover and customer use and is not to be used.

- REFERENCES: (1) MEMO, C. C. ENGLAND TO R. B. DAVIS, "ALTERNATE DECAY HEAT SYSTEM REQUIREMENTS," 7:22 A.M., APRIL 9, 1979.
- (2) MEMO, G. A. MEYER TO J. D. CARLTON, "MINIMUM CORE FLOW - LONG TERM COOLING," 1200, APRIL 4, 1979
- (3) MEMO, A. B. JACKSON TO C. C. ENGLAND, "CORE FLOW REQUIRED FROM HPI SYSTEM," APRIL 8, 1979

AS REQUESTED IN REFERENCE (1), THE UNCERTAINTIES INCLUDED IN THE CORE FLOW REQUIREMENTS BY T-X HAVE BEEN RE-EVALUATED BASED ON UNCERTAINTIES PROVIDED BY CENTRAL ANALYSIS. UNCERTAINTY DUE TO CORE BYPASS HAS BEEN REMOVED AND THE CORE FLOW REQUIREMENTS FROM REFERENCES (2) AND (3) ARE REPLOTTED ON FIGURES 1 AND 2. THE CONTROL ANALYSIS UNCERTAINTY OF 5.8 TIMES THE CORE FLOW REQUIRED MUST BE APPLIED TO THESE CURVES.

A. B. JACKSON

ABJ:dmd

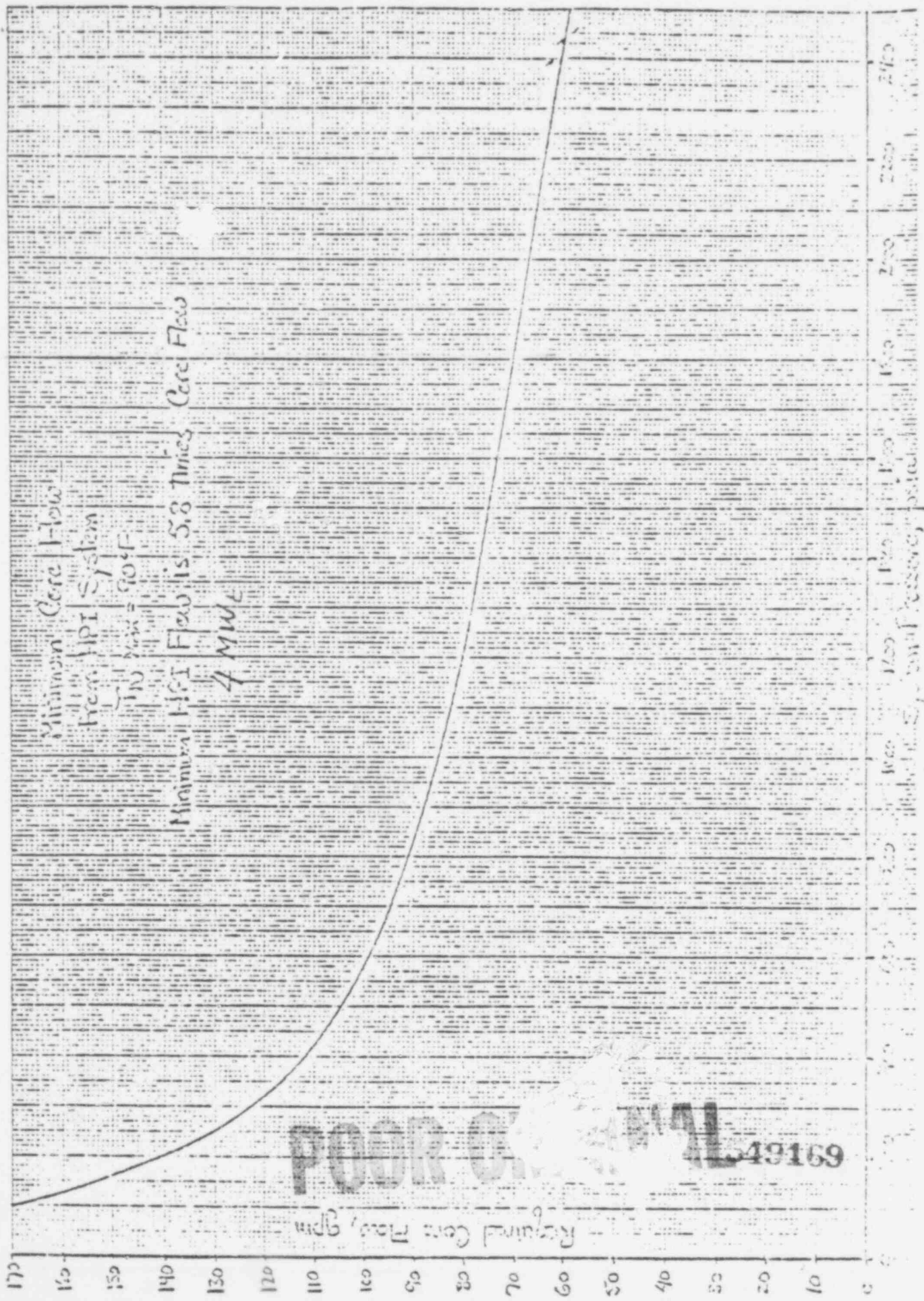
CC: JS TULENKO  
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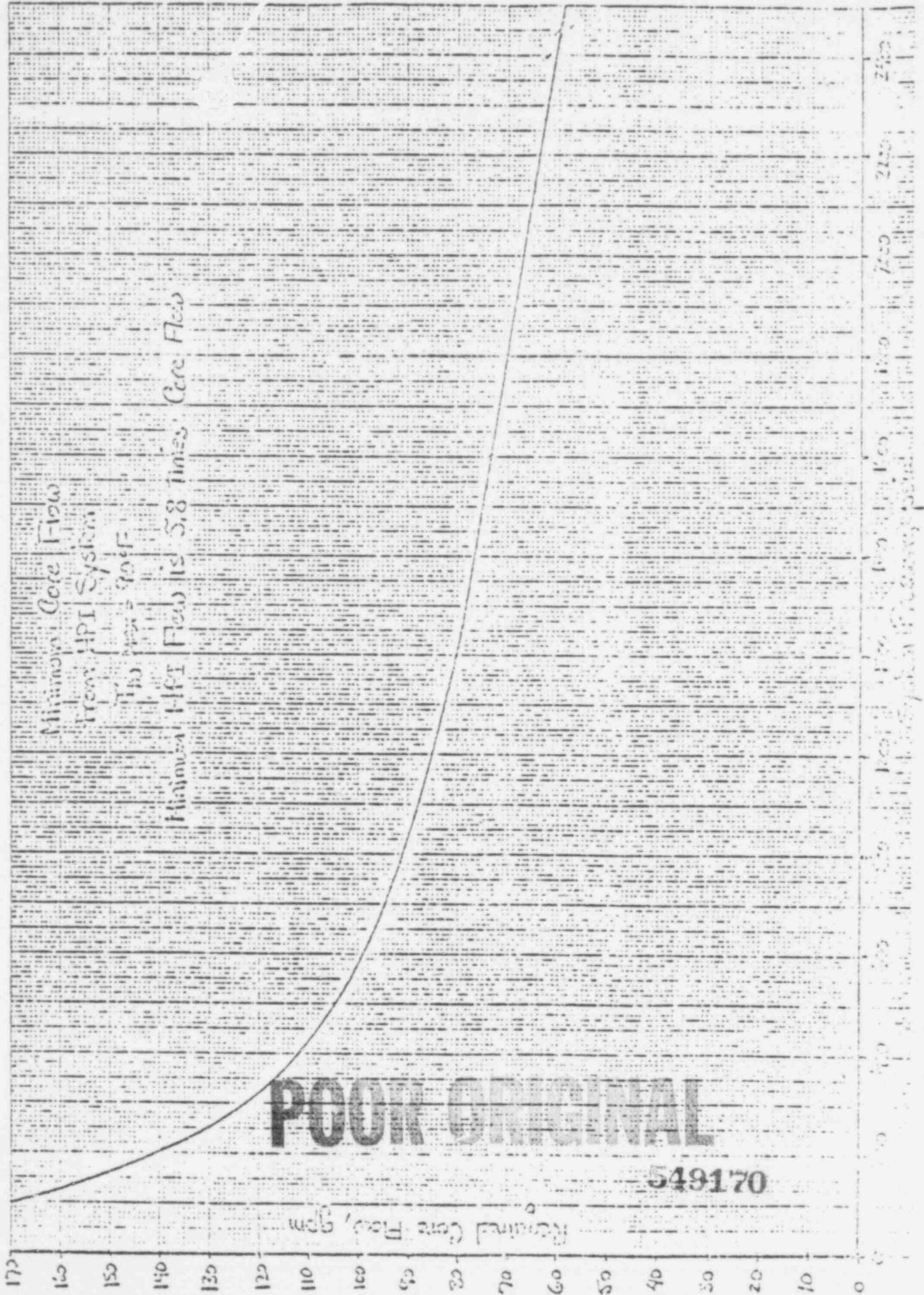
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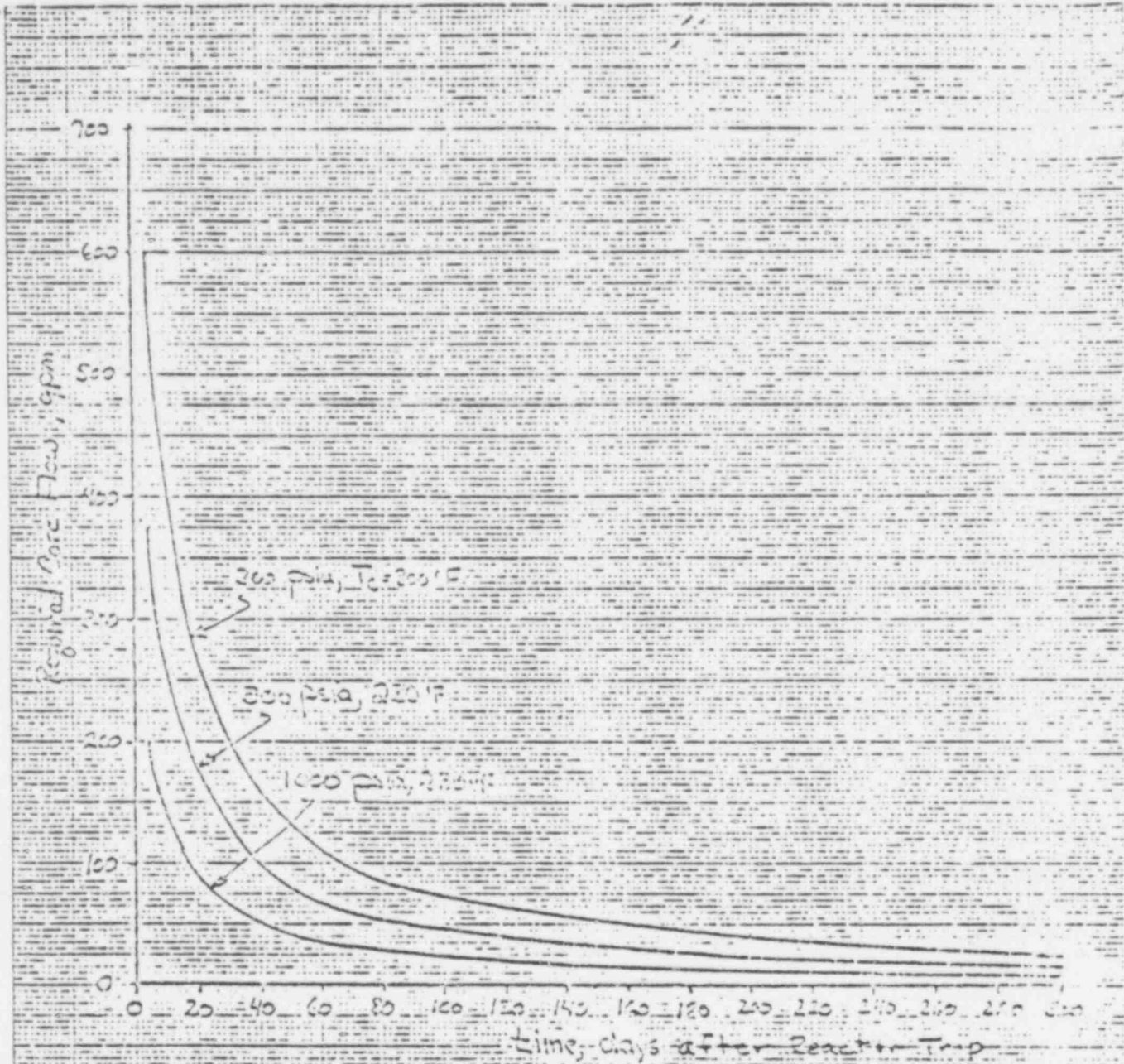
POOR ORIGINAL

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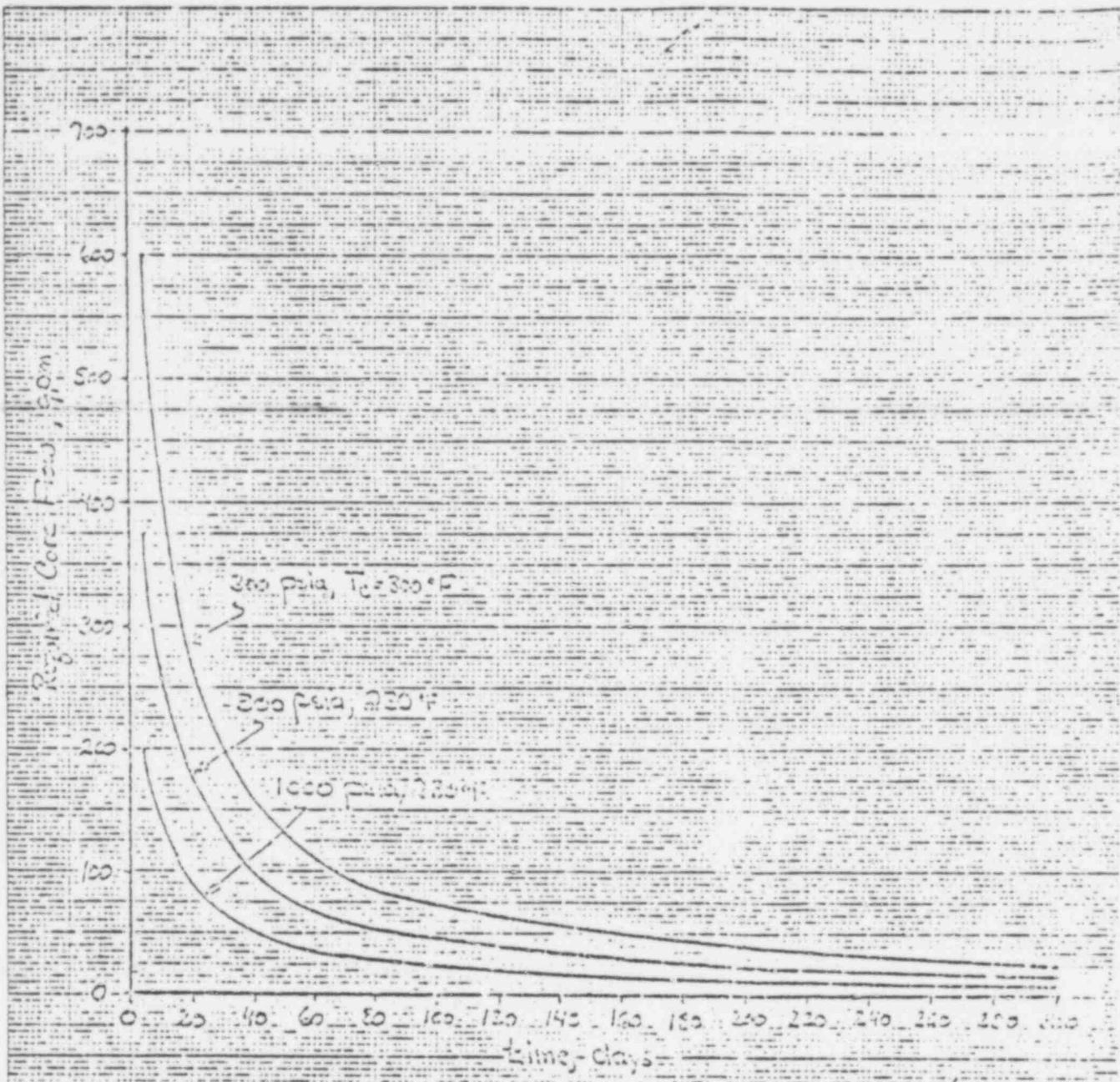
Minimum Core Flow Required  
for Long Term Cooling

Decay Heat System Flow Required = 5.8 Times Core Flow

POOR ORIGINAL

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5/79



Minimum Core Flow Required  
for Long Term Cooling

Decay Heat System Flow Required = 5.8 Times Core Flow

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151  
177

THE BABCOCK & WILCOX COMPANY  
POWER GENERATION GROUP

INSTRUCTION #310

To R. B. DAVIS, CONTROL ANALYSIS, A. L. JACKSON, THERMAL HYDRAULICS

From C. C. ENGLAND, LONG TERM COOLING *cc: England*

805 663.5

Cust. File No. or Ref.

Subj. ALTERNATE DECAY HEAT SYSTEM REQUIREMENTS Date TIME: 7:22 P.M. APRIL 9, 1979

This letter to cover one customer and one subject only.

R. B. DAVIS' MEMO OF APRIL 8, 1979 RECOMMENDS THAT DECAY HEAT SYSTEM FLOW REQUIREMENTS BE SET AT 5.8 TIMES THE CORE FLOW REQUIREMENT.

I UNDERSTAND THAT THE ATTACHED CURVE FROM THERMAL HYDRAULICS ALREADY CONTAINS SOME CONSERVATISM (ON THE ORDER OF A FACTOR OF 3) TO ACCOUNT FOR UNKNOWN IN THE CORE.

I REQUEST THAT YOU REVIEW YOUR CALCULATIONS WITH THERMAL HYDRAULICS TO ASSURE THAT THE "CONSERVATISMS" AREN'T BEING ADDED TWICE.

A D.H. FLOW RATE MUTUALLY AGREED UP ON BETWEEN CONTROL ANALYSIS AND T.H.E. SHOULD BE ESTABLISHED.

PLEASE PROVIDE THIS BY 0800 ON 4/9/79.

CCE/CW

ATTACHMENT

549173

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NUCLEAR GENERATION GROUP

To	CC ENGLAND	<i>has this been factored into the core flow?</i>	<i>yes - ADHS is 3x this 1200 gpm core</i>	
From	RB DAVIS			
Cust.	THI-2			
Subj.	REQUIREMENTS FOR ALTERNATE DECAY HEAT SYSTEM			File No. or Ref.
				Date
		APRIL 8, 1979 2335		

This letter is cover and customer and was subject only

REFERENCE: CC ENGLAND, RB DAVIS, SAME SUBJECT, APRIL 5, 1979

IN THE REFERENCE, I RECOMMENDED THE DECAY HEAT SYSTEM FLOW REQUIREMENT BE 3 TIMES THE CORE DECAY HEAT FLOW REQUIREMENT. THIS MEMO REVISES THIS REQUIREMENT TO 5.8 TIMES THE CORE FLOW REQUIREMENT.

IN MY LATEST ANALYSIS, I IMPROVED ON MY CALCULATION TO INCLUDE (1) A BETTER HYDRAULICS MODEL, (2) A HIGHER CORE RESISTANCE ( $33 \times 10^8$  psf/(lbs/sec)<sup>2</sup>) PROVIDED BY PS BARTELLS, AND (3) A CORE BYPASS FLOW OF 27%. THIS NEW DATA RAISED THE REQUIREMENT TO 5.8 TIMES THE CORE FLOW REQUIREMENT. ATTACHED IS GEORGE MEYER'S CORE FLOW REQUIREMENT ON WHICH I ADDED A NOTE ON THE DECAY HEAT SYSTEM FLOW REQUIREMENT.

THE DELTA P (FROM THE CORE FLOOD NOZZLE ACROSS THE REACTOR VESSEL AND UP TO THE DECAY HEAT DROP LINE) IS STILL NEGLIGIBLE (APPROXIMATELY .02 PSIA)

ijs

*R B Davis*  
R. B. DAVIS

549174

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