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REVISION 1
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SUPPLEMENTAL RELOAD LICENSING SUBMITTAL FOR PEACH BOTTOM ATOMIC POWER STATION UNIT 3, RELOAD 6

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SUPPLEMENTAL RELOAD LICENSING SUBMITTAL
FOR
PEACH BOTTOM ATOMIC POWER STATION
UNIT 3, RELOAD 6

Prepared: P. A. Lambert
P. A. Lambert
Fuel Licensing

Verified: D. K. Dennison
D. K. Dennison
Fuel Licensing

Approved: J. S. Charnley
J. S. Charnley, Manager
Fuel Licensing

NUCLEAR ENERGY BUSINESS OPERATIONS • GENERAL ELECTRIC COMPANY
SAN JOSE, CALIFORNIA 95125

GENERAL ELECTRIC

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1. PLANT UNIQUE ITEM (1.0)*

Appendix A: GETAB Analysis Initial Conditions

2. RELOAD FUEL BUNDLES (1.0, 2.0, 3.3.1 AND 4.0)

Fuel Type	Cycle Loaded	Number	Number Drilled
Irradiated			
P8DRB299	5	196	196
P8DRB284H	6	56	56
P8DRB299	6	224	224
PBLTA1	6	2	2
PBLTA2	6	2	2
New			
BP8DRB299H	7	140	140
BP8DRB299	7	144	144
Total		764	764

3. REFERENCE CORE LOADING PATTERN (3.3.1)

Nominal previous cycle core average exposure at end of cycle: 18562 MWd/ST

Minimum previous cycle core average exposure at end of cycle from cold shutdown considerations: 18562 MWd/ST

Assumed reload cycle core average exposure at end of cycle: 18089 MWd/ST

Core loading pattern: Figure 1

*( ) Refers to area of discussion in "General Electric Standard Application for Reactor Fuel," NEDE-24011-P-A-6. A letter "S" preceding the number refers to the U.S. supplement.

4. CALCULATED CORE EFFECTIVE MULTIPLICATION AND CONTROL SYSTEM WORTH - NO VOIDS, 20°C (3.3.2.1.1 AND 3.3.2.1.2)

Beginning of Cycle, K-effective

Uncontrolled	1.119
Fully Controlled	0.963
Strongest Control Rod Out	0.987
R, Maximum Increase in Cold Core Reactivity with Exposure into Cycle, Delta K	0.003

5. STANDBY LIQUID CONTROL SYSTEM SHUTDOWN CAPABILITY (3.3.2.1.3)

ppm	Shutdown Margin (Δk) (20°C, Xenon Free)
660	0.035

6. RELOAD UNIQUE TRANSIENT ANALYSIS INPUT (3.3.2.1.5 AND S.2.2)

(REDY EVENTS ONLY)

	EOC	EOC-2000 MWd/ST
Void Fraction (%)	39.8	39.1
Average Fuel Temperature (°F)	1279	1281
Void Coefficient N/A* (¢/% Rg)	-8.50/-10.63	-9.59/-11.99
Doppler Coefficient N/A* (¢/°F)	-0.222/-0.211	-0.214/-0.203
Scram Worth N/A* ($)	**	**

*N = Nuclear Input Data
A = Used in Transient Analysis

**Generic exposure independent values are used as given in "General Electric Standard Application for Reactor Fuel," NEDE-24011-P-A-6, April 1983.

7. RELOAD UNIQUE GETAB TRANSIENT ANALYSIS INITIAL CONDITION PARAMETERS (S.2.2)

Fuel Design	Peaking Factors Local	Radial	Axial	R-Factor	Bundle Power (MWt)	Bundle Flow (1000 lb/hr)	Initial MCPR
BOC 7 to EOC 7-2000 MWd/ST							
BP/P8x8R	1.20	1.58	1.40	1.051	6.641	108.4	1.22
PBLTA1	1.25	1.46	1.40	1.100	6.154	122.1	1.21
PBLTA2	1.25	1.44	1.40	1.100	6.041	113.6	1.21
EOC 7-2000 MWd/ST to EOC 7							
BP/P8x8R	1.20	1.47	1.40	1.051	6.176	111.4	1.32
PBLTA1	1.25	1.33	1.40	1.100	5.590	125.7	1.33
PBLTA2	1.25	1.31	1.40	1.100	5.519	117.1	1.32

8. SELECTED MARGIN IMPROVEMENT OPTIONS (S.2.2.2)

Transient Recategorization:	No
Recirculation Pump Trip:	No
Rod Withdrawal Limiter:	No
Thermal Power Monitor:	No
Improved Scram Time:	Yes (ODYN Option B)
Exposure Dependent Limits:	Yes
Exposure Points Analyzed:	EOC
	EOC-2000 MWd/ST

9. OPERATING FLEXIBILITY OPTIONS (S.2.2.3)

Single Loop Operation:	Yes
Load Line Limit:	No
Extended Load Line Limit:	No
Increased Core Flow:	No
Flow Point Analyzed:	N/A
Feedwater Temperature Reduction:	No

10. CORE-WIDE TRANSIENT ANALYSIS RESULTS (S.2.2.1)

Transient	Flux (%NBR)	Q/A (%NBR)	ΔCPR BP/P8x8R	ΔCPR PBLTA1	ΔCPR PBLTA2	Figure
Exposure: BOC to EOC-2000 MWd/ST						
Load Rejection w/o Bypass	542	121	0.19	0.18	0.18	2a
Loss of 100°F Feedwater Heating	124	123	0.15	0.14	0.14	3
Feedwater Controller Failure	242	118	0.11	0.10	0.10	4a
Exposure: EOC-2000 MWd/ST to EOC						
Load Rejection w/o Bypass	647	127	0.25	0.26	0.25	2b
Loss of 100°F Feedwater Heating	124	123	0.15	0.14	0.14	3
Feedwater Controller Failure	320	124	0.18	0.18	0.17	4b

11. LOCAL ROD WITHDRAWAL ERROR (WITH LIMITING INSTRUMENT FAILURE) TRANSIENT SUMMARY (S.2.2.1)

Limiting Rod Pattern: Figure 5

Rod Block Reading	Rod Position (feet withdrawn)	ΔCPR BP/P8x8R	ΔCPR PBLTA1	ΔCPR PTLBA2	MLHGR (kW/ft) BP/P8x8R	MLHGR (kW/ft) PBLTA1	MLHGR (kW/ft) PTLBA2
104	4.5	0.16	0.16	0.16	14.99	14.99	14.99
105	5.0	0.18	0.18	0.18	14.99	14.99	14.99
106	5.5	0.19	0.19	0.19	14.99	14.99	14.99
107*	6.0	0.20	0.20	0.20	14.99	14.99	14.99
108	9.0	0.26	0.26	0.26	14.99	14.99	14.99
109	10.0	0.27	0.27	0.27	16.26	16.26	16.26
110	12.0	0.32	0.32	0.32	18.37	18.37	18.37

*Indicates Setpoint selected

12. CYCLE MCPR VALUES (S.2.2)

Non-Pressurization Events

	BP/P8x8R	PBLTA1	PBLTA2
Exposure Range: BOC to EOC			
Loss of 100°F Feedwater Heating	1.22	1.21	1.21
Fuel Loading Error	1.22	--	--
Rod Withdrawal Error	1.27	1.27	1.27

Pressurization Events

	Option A			Option B		
	BP/P8x8R	PBLTA1	PBLTA2	BP/P8x8R	PBLTA1	PBLTA2
Exposure Range: BOC to EOC-2000 MWd/ST						
Load Rejection w/o Bypass	1.32	1.31	1.31	1.11	1.11	1.11
Feedwater Controller Failure	1.23	1.22	1.22	1.17	1.16	1.16
Exposure Range: EOC-2000 MWd/ST to EOC						
Load Rejection w/o Bypass	1.38	1.39	1.38	1.26	1.27	1.26
Feedwater Controller Failure	1.31	1.31	1.29	1.24	1.24	1.23

13. OVERPRESSURIZATION ANALYSIS SUMMARY (S.2.3)

Transient	P_{sl} (psig)	P_v (psig)	Plant Response
MSIV Closure (Flux Scram)	1242	1271	Figure 6

14. STABILITY ANALYSIS RESULTS (S.2.4)

Rod Line Analyzed: 105% Rod Line	
Decay Ratio:	Figure 7
Reactor Core Stability Decay Ratio, x_2/x_0	0.86
Channel Hydrodynamic Performance Decay Ratio, x_2/x_0	
Channel Type	
BP/P8x8R	0.29
PBLTA1	0.13
PBLTA2	0.26

15. LOADING ERROR RESULTS (S.2.5.4)

Variable Water Gap Misoriented Bundle Analysis: Yes

Event	Initial CPR	Resulting CPR
Rotated Bundle Error	1.20	1.07

16. CONTROL ROD DROP ANALYSIS RESULTS (S.2.5.1)

Bounding Analysis Results:

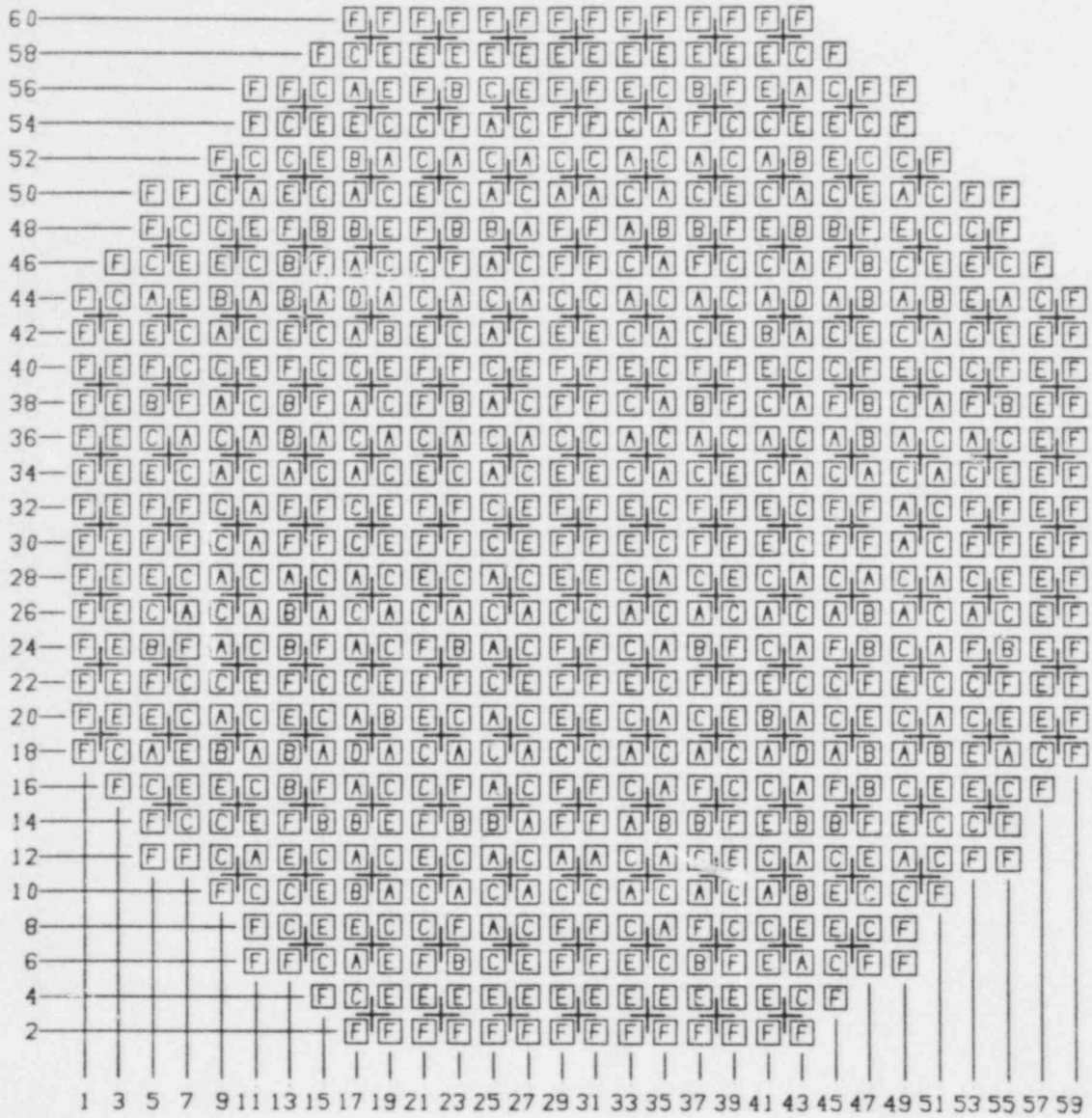
Doppler Reactivity Coefficient:	Figure 8
Accident Reactivity Shape Functions:	Figures 9 and 10
Scram Reactivity Functions:	Figures 11 and 12

Plant Specific Analysis Results:

Parameter(s) not Bounded, Cold:	None
Resultant Peak Enthalpy, Cold:	N/A
Parameter(s) not Bounded, HSB:	Accident Reactivity Scram Reactivity
Resultant Peak Enthalpy, HSB:	264.6 cal/gm

17. LOSS-OF-COOLANT ACCIDENT RESULT (S.2.5.2)

See "Loss-of-Coolant Accident Analysis for Peach Bottom Atomic Power Station Unit 3," General Electric Company, December 1977 (NEDO-24082, as amended).



FUEL TYPE	
A = BP8DRB299H (CYCLE 7)	D = PBLTA1 PBLTA2 (CYCLE 6)
B = P8DRB284H (CYCLE 6)	E = BP8DRB299 (CYCLE 7)
C = P8DRB299 (CYCLE 6)	F = P8DRB299 (CYCLE 5)

Figure 1. Reference Core Loading Pattern

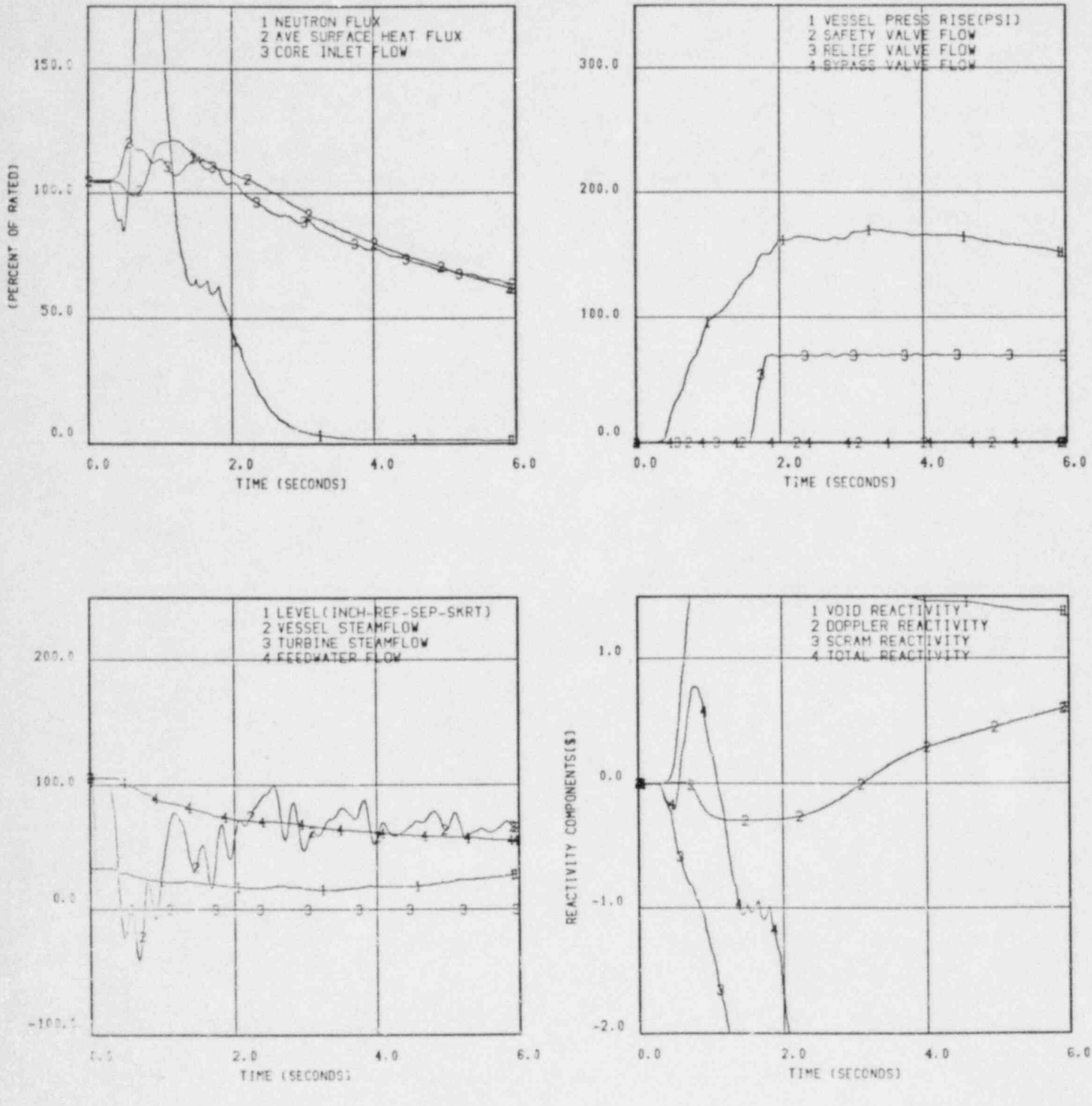


Figure 2a. Plant Response to Generator Load Rejection Without Bypass, EOC7-2000 MWd/ST

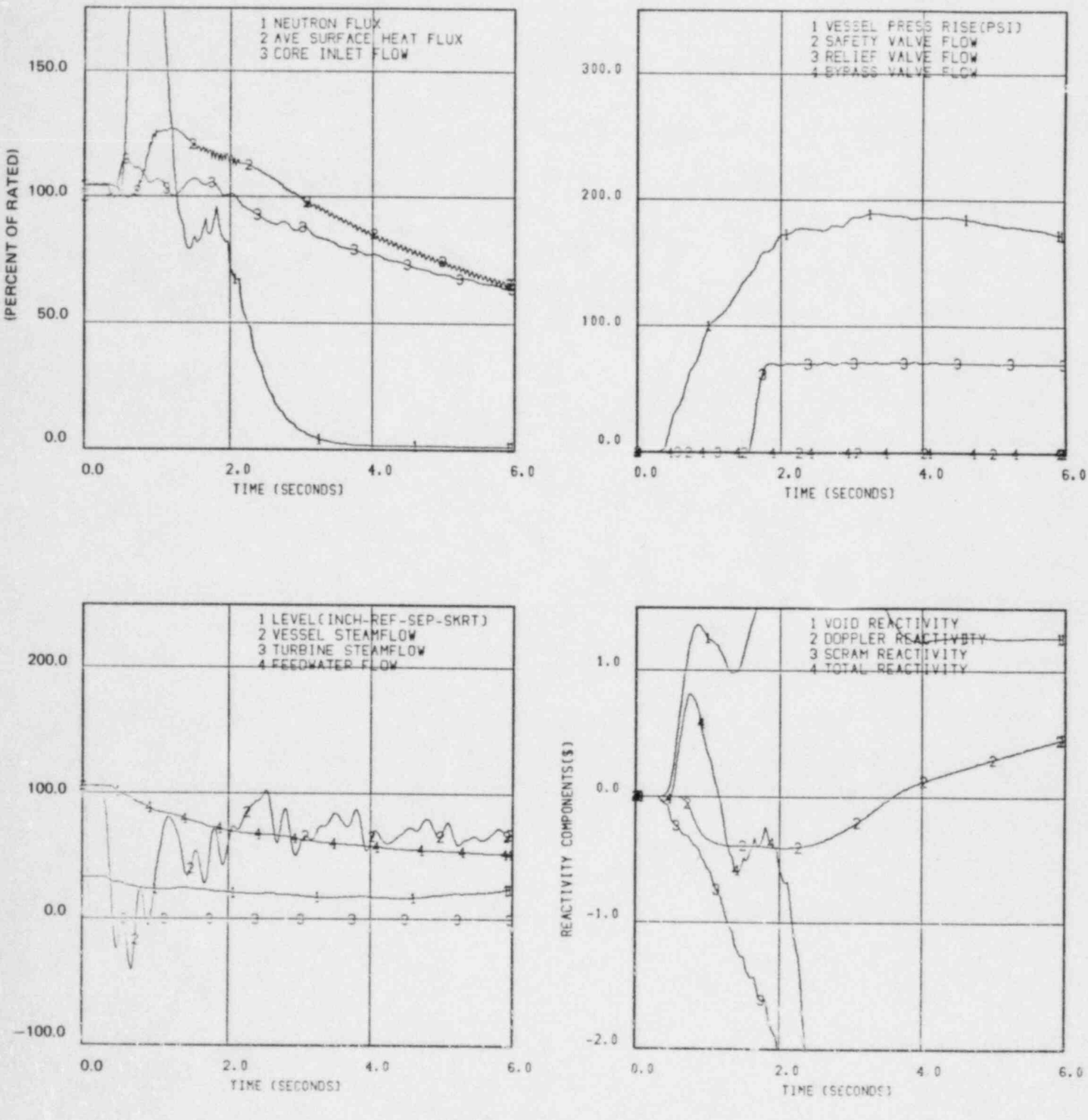


Figure 2b. Plant Response to Generator Load Rejection Without Bypass, EOC7

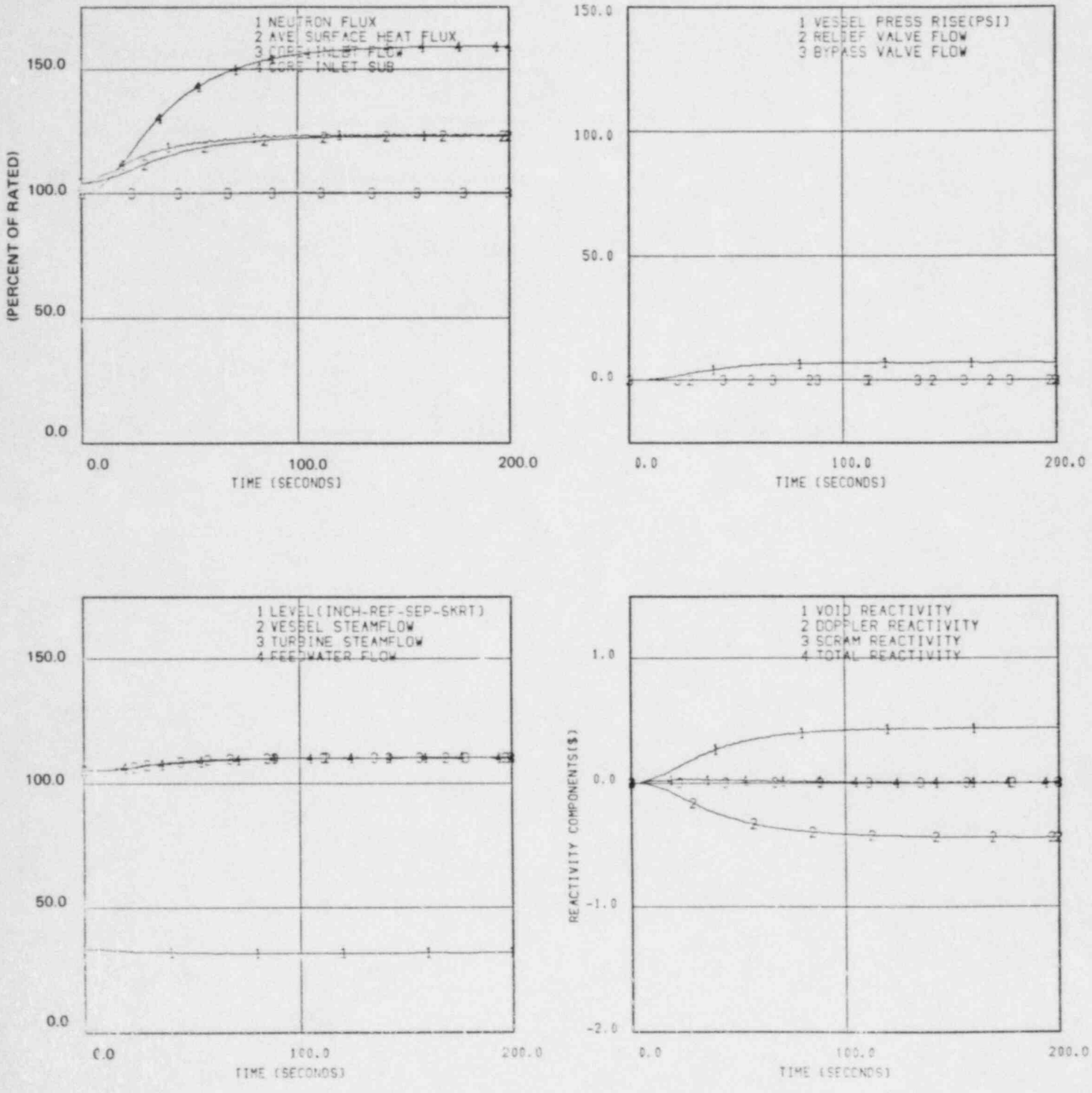


Figure 3. Plant Response to Loss of 100°F Feedwater Heating

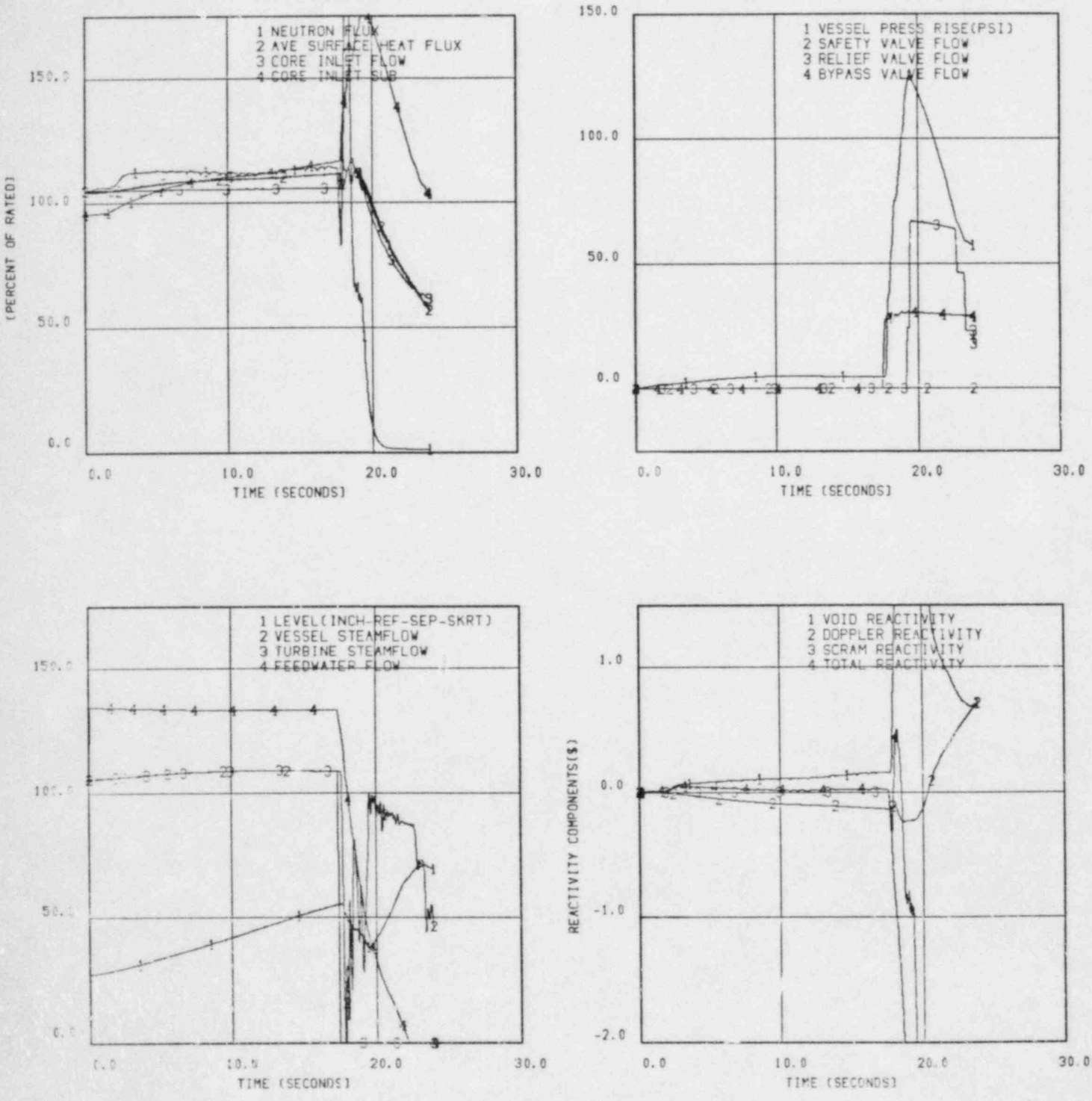


Figure 4a. Plant Response to Feedwater Controller Failure, EOC7-2000 MWd/ST

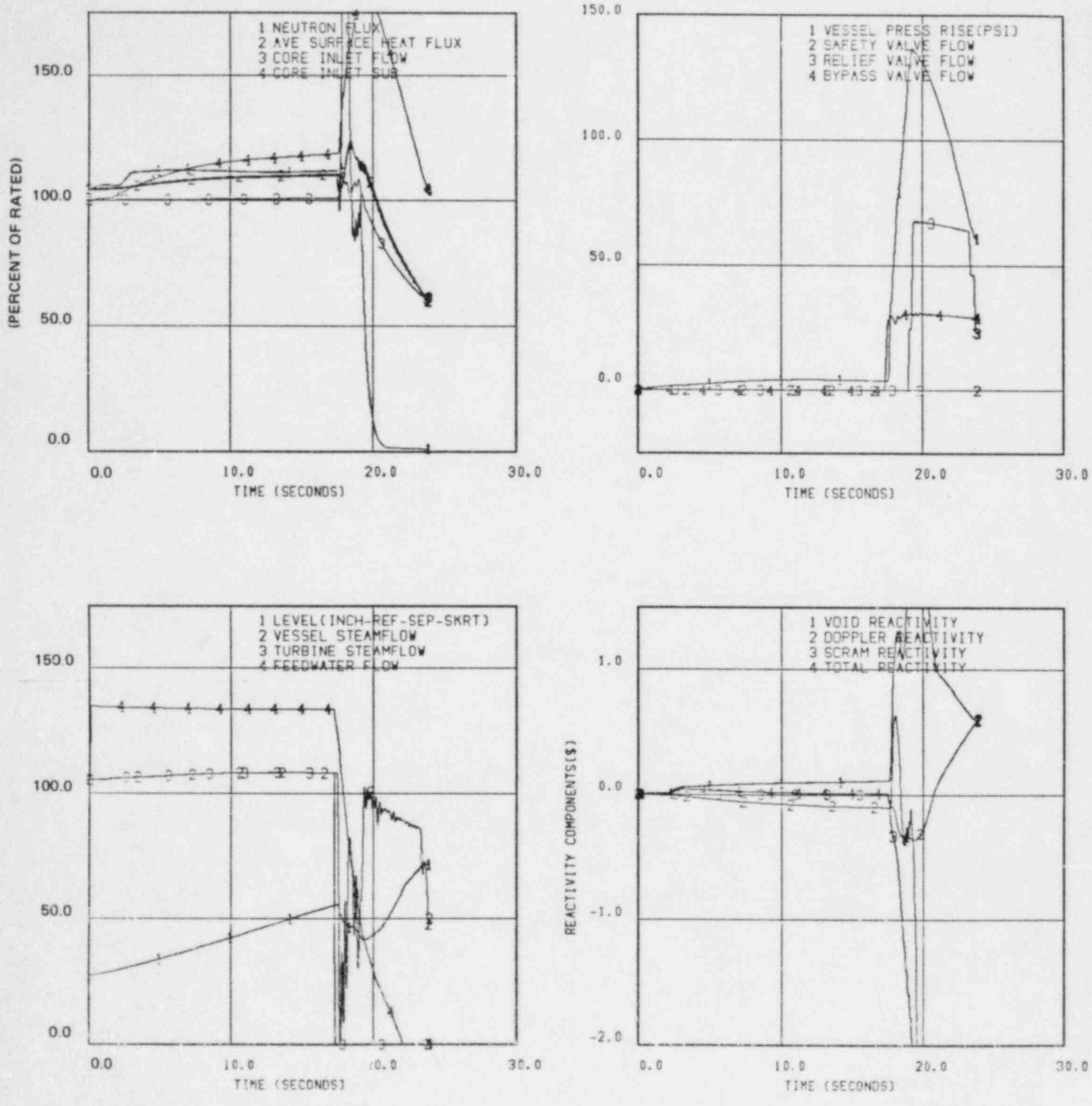


Figure 4b. Plant Response to Feedwater Controller Failure, EOC7

	02	06	10	14	18	22	26	30	34	38	42	46	50	54	58
59					6		10		10		6				
55				44		26		26		26		44			
51			6		6		2		2		6		6		
47		44		30		30		30		30		30		44	
43	6		6		10		14		14		10		6		6
39		26		30								30		26	
35	10		2		14		0		0		14		2		10
31		26		30								30		26	
27	10		2		14		0		0		14		2		10
23		26		30								30		26	
19	6		6		10		14		14		10		6		6
15		44		30		30		30		30		30		44	
11			6		6		2		2		6		6		
7				44		26		26		26		44			
3					6		10		10		6				

NOTES: 1. Number indicates number of notches withdrawn out of 48. Blank is a withdrawn rod.

2. Error rod is (26,35).

Figure 5. Limiting Rod Pattern

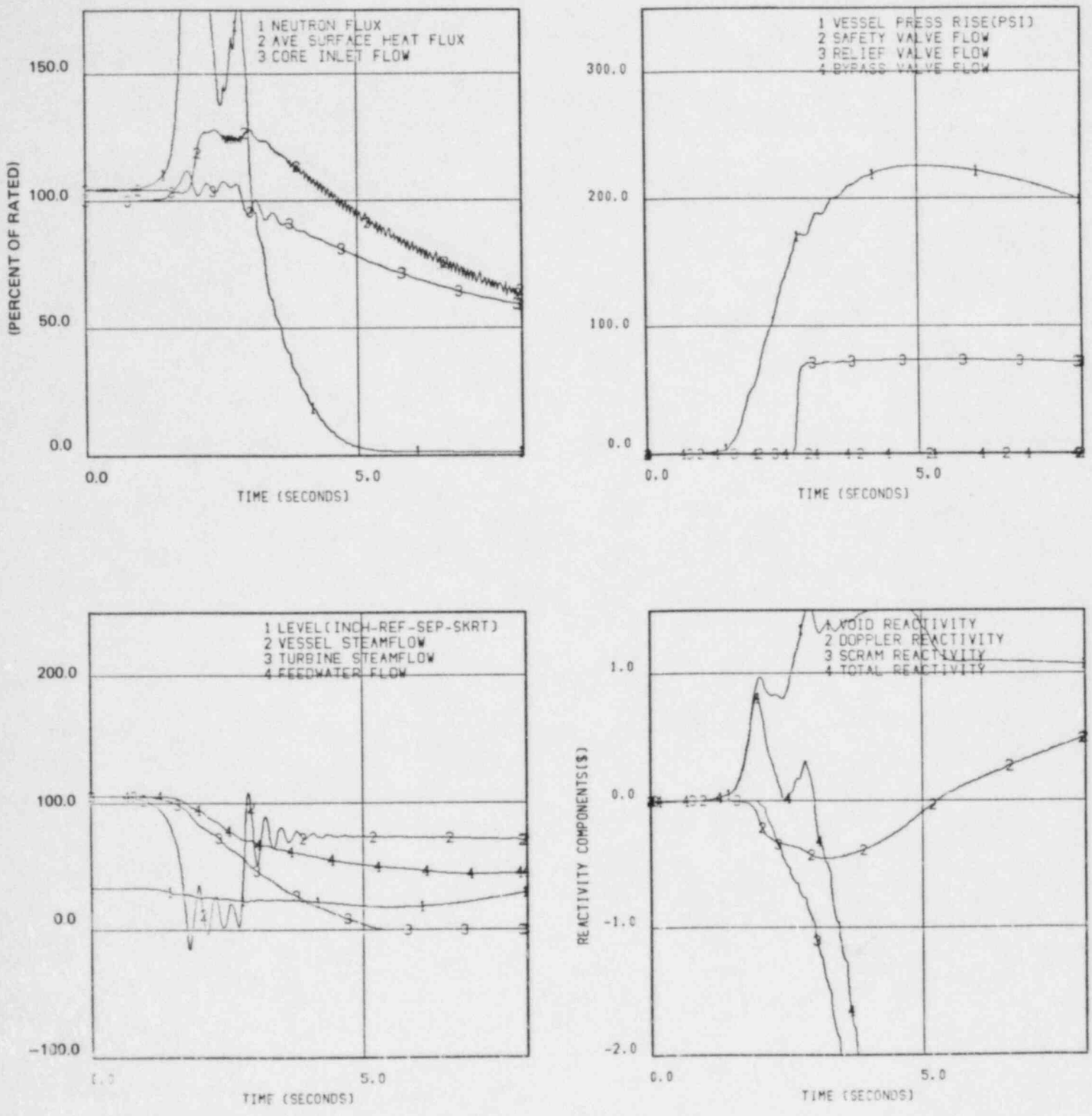


Figure 6. Plant Response to MSIV Closure (Flux Scram)

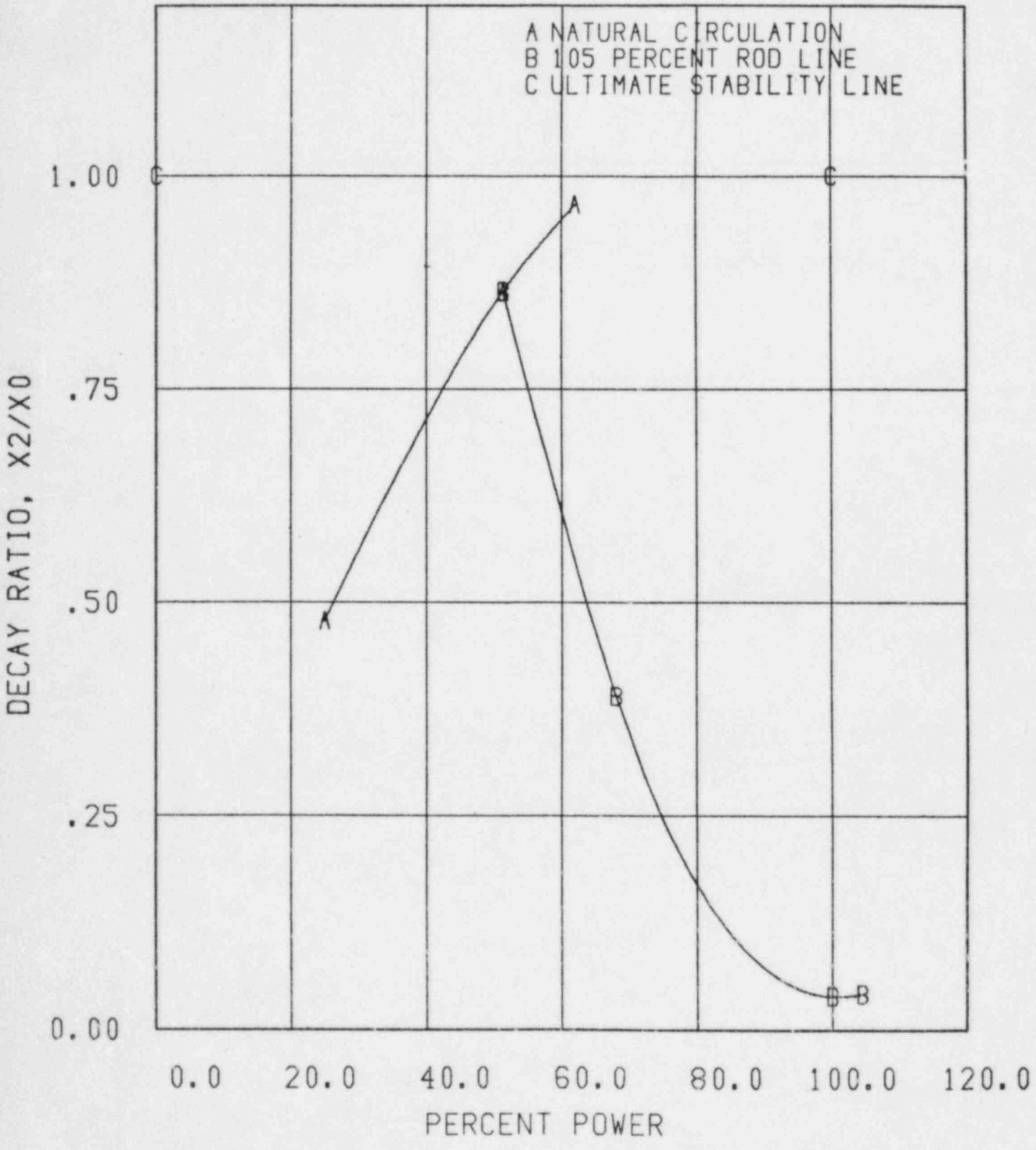


Figure 7. Reactor Core Decay Ratio

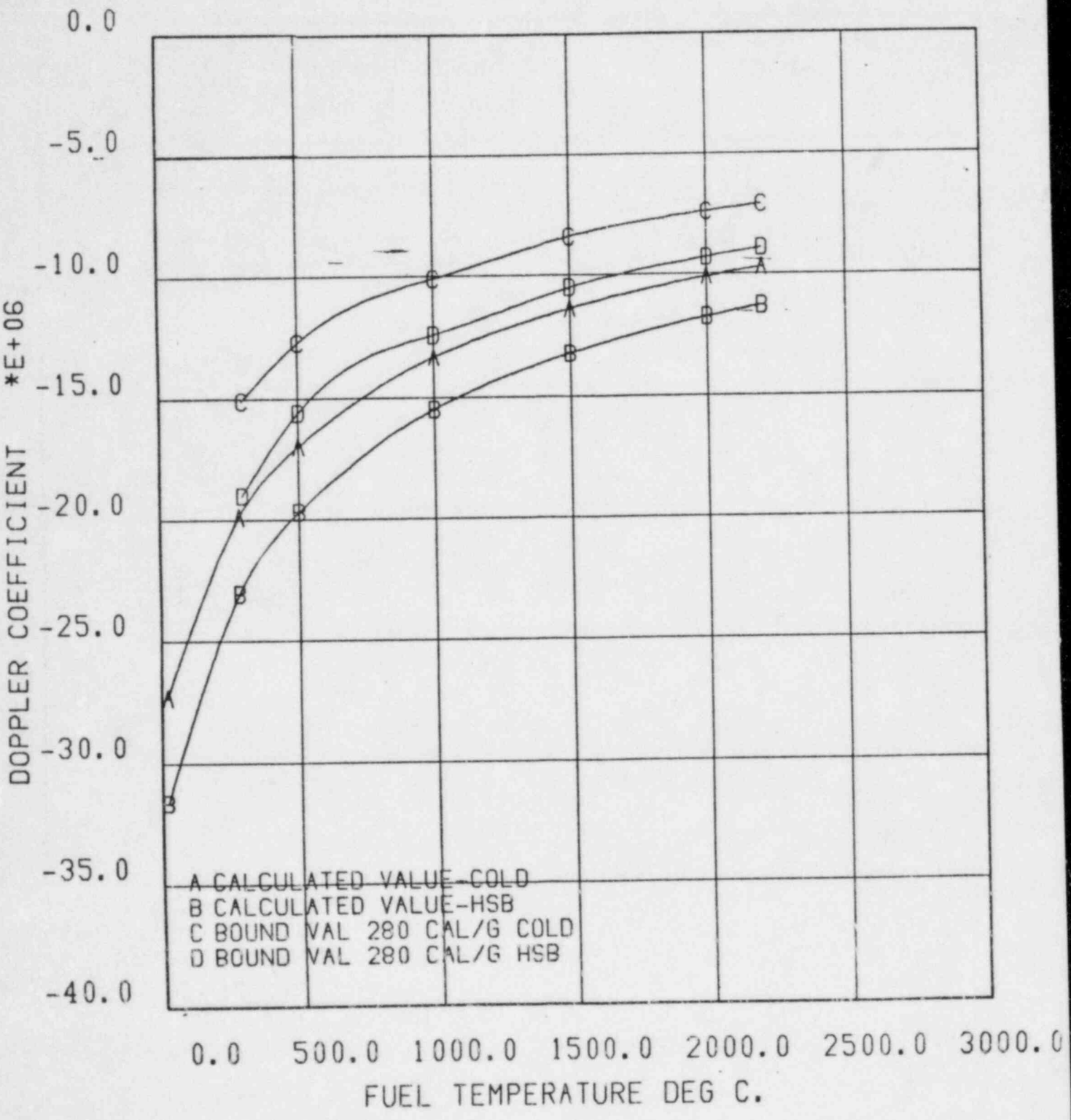


Figure 8. Fuel Doppler Coefficient in $1/\Delta°C$

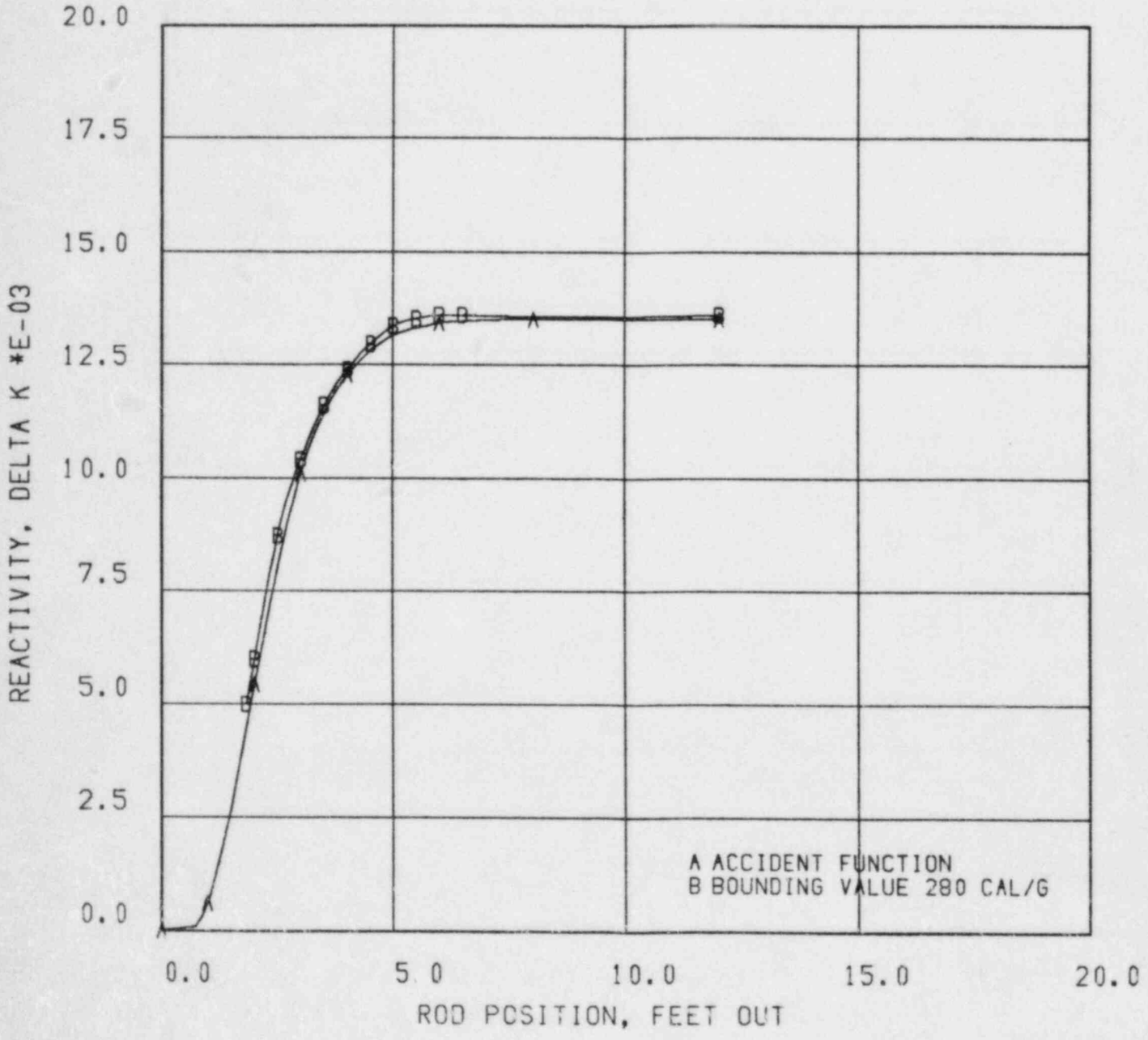


Figure 9. Accident Reactivity Shape Function, Cold Startup

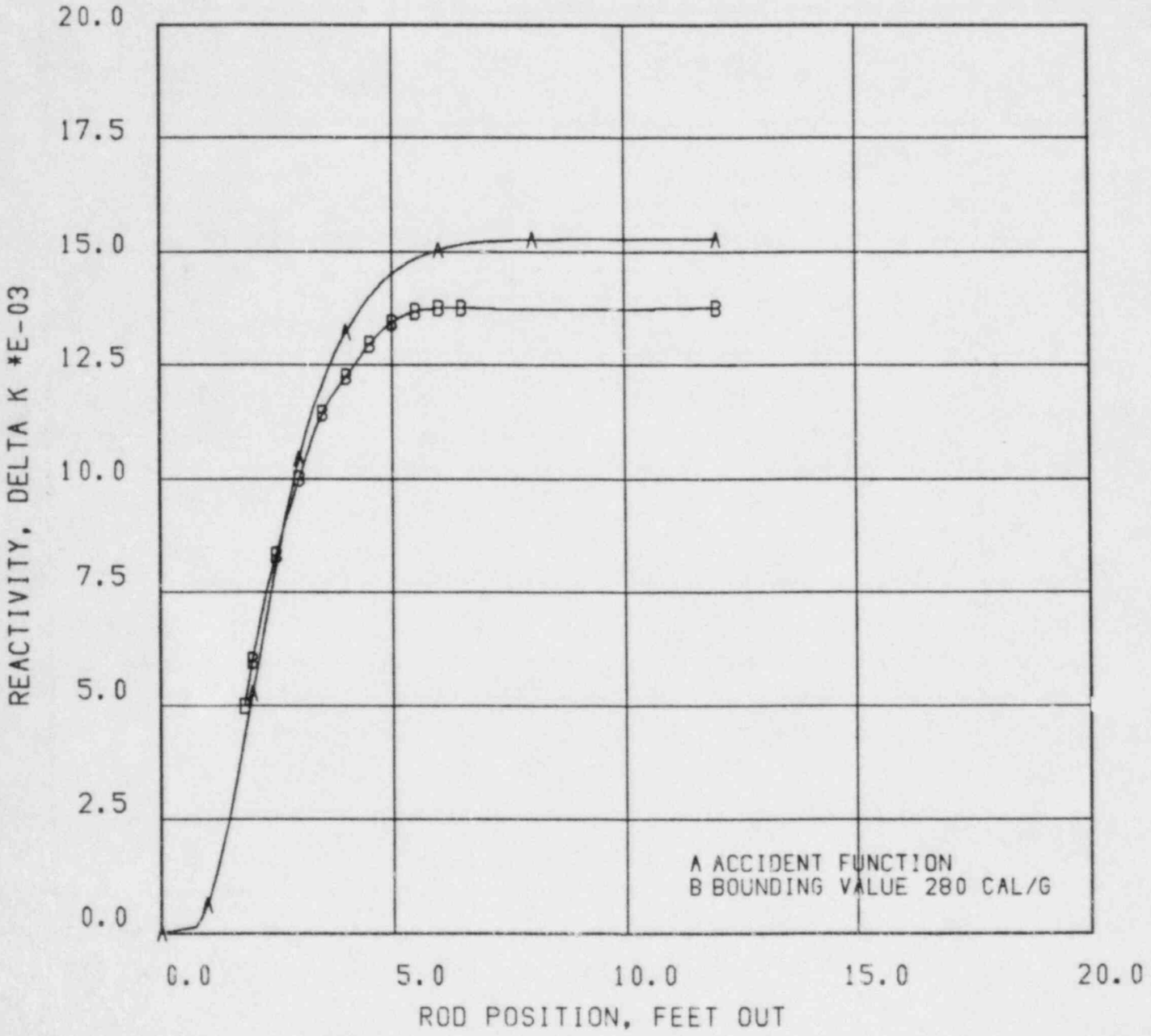


Figure 10. Accident Reactivity Shape Function, Hot Standby

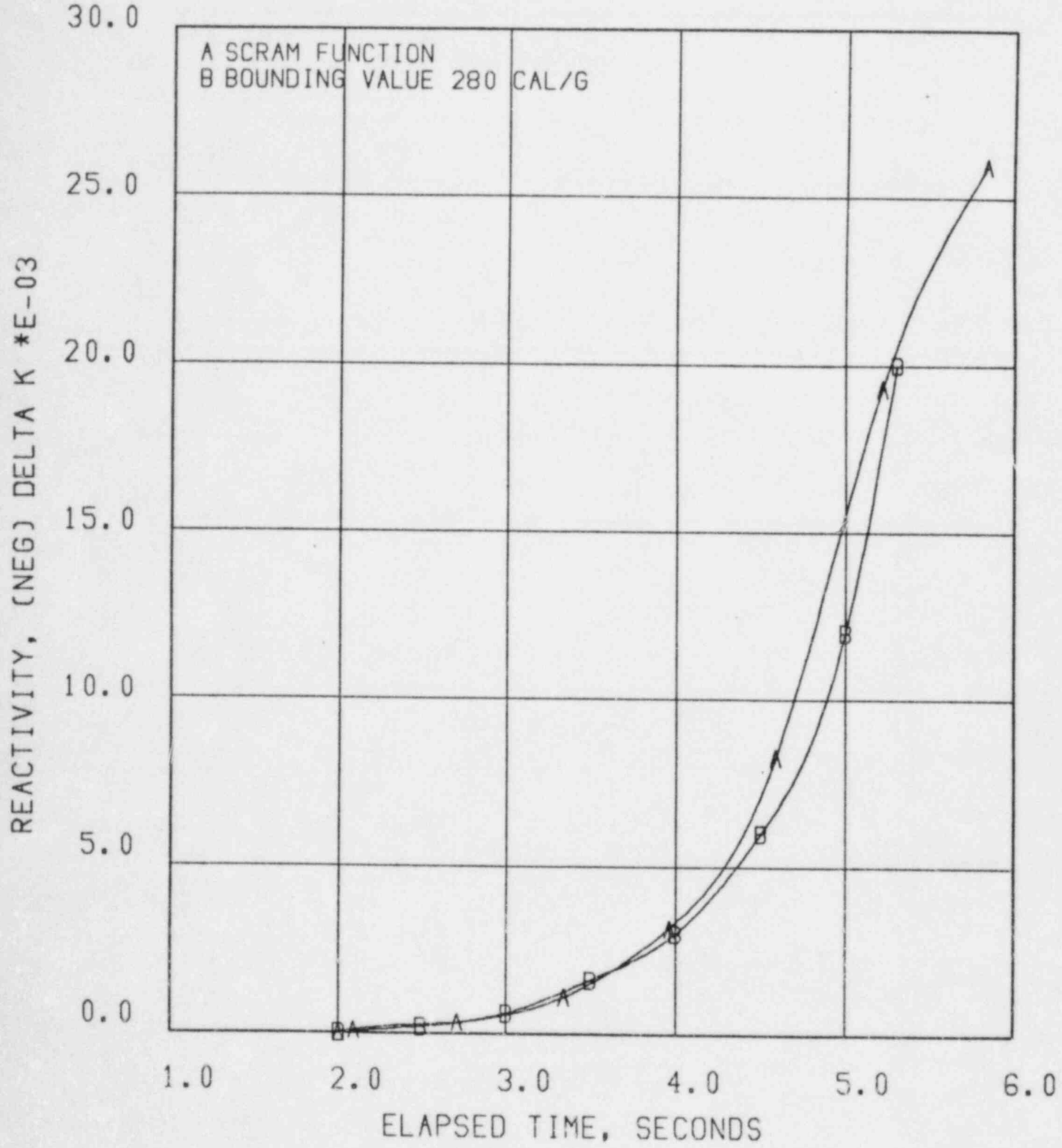


Figure 11. Scram Reactivity Function, Cold Startup

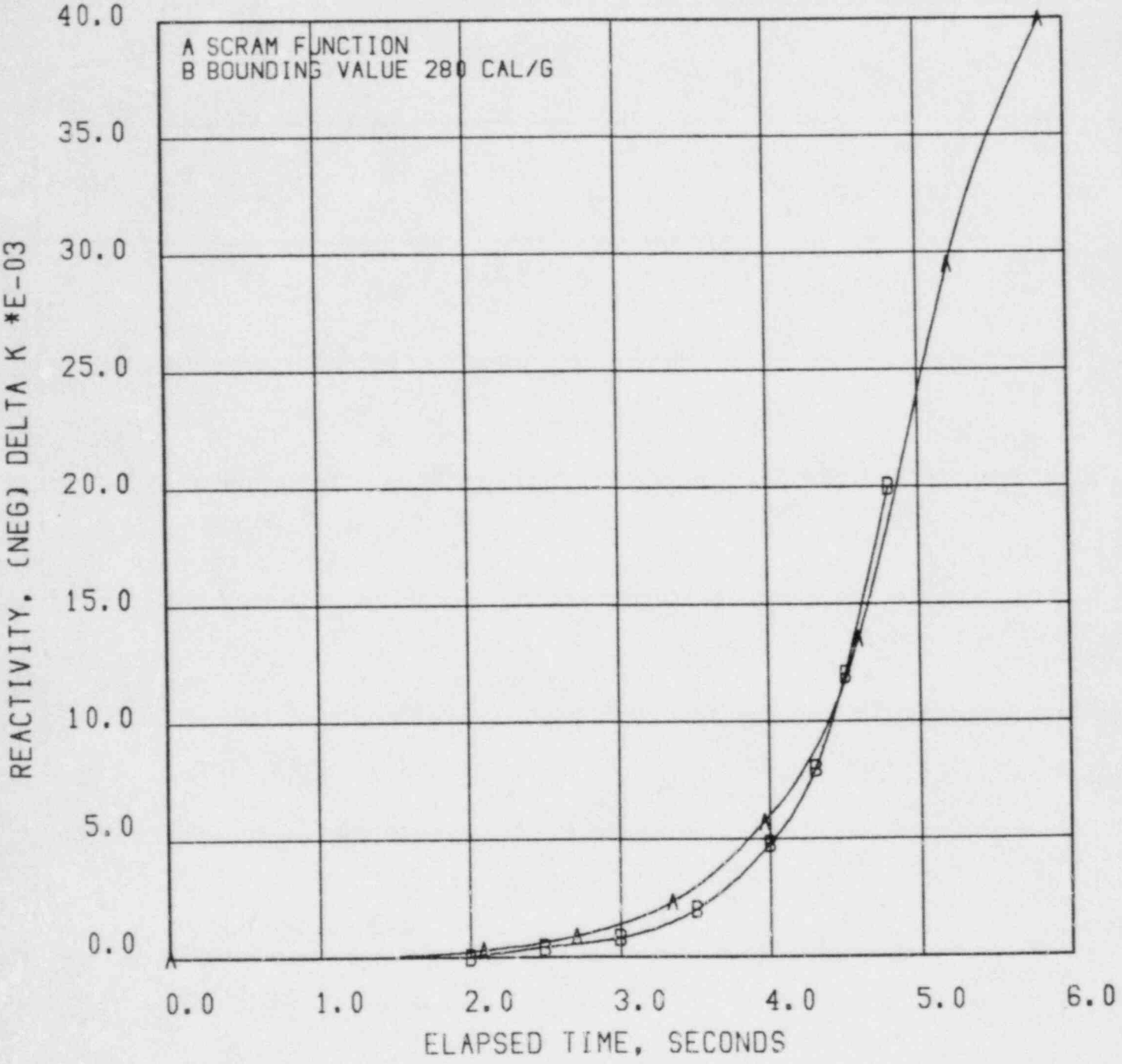


Figure 12. Scram Reactivity Function, Hot Standby

APPENDIX A

GETAB Analysis Initial Conditions:

Reactor Pressure, psia	1035.0
Inlet Enthalpy, BTU/lb	521.5

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