

3.5.2.1

ANALYSIS TO DEMONSTRATE ADEQUATE CORE COOLING

The analysis presented in this section demonstrates the capability of the BWR to maintain adequate core cooling, even under severely degraded conditions resulting from multiple failures or operator errors, following a loss of inventory either through a pipe break or through the safety relief valves. This analysis is applicable to all events which can lead to loss of vessel inventory such as a pipe break, a stuck open relief valve, loss of feedwater, etc.

To be consistent with Section 3.1.1., most of the analyses were performed using a 0.1 ft² break size. This break size causes a significant inventory depletion which can lead to core uncover. In addition, this break size is representative of the worst small break for most plants. The 0.1 ft² break size is also small enough to be within the capabilities of the high pressure system while being large enough to demonstrate the differences between various break locations and product lines.

3.5.2.1.1 1LPCS + ADS ONLY

3.5.2.1.1.1 LIQUID BREAKS

These cases show the response to a very small break LOCA with only 1 LPCS and the ADS system operating.

BWR/2	0.001 ft ²	Suction Break	Figure Group 3.5.2.1-1
BWR/4	0.001 ft ²	Suction Break	Figure Group 3.5.2.1-2

The following cases give a comparison of the results for the various product lines in addition to showing the small break response.

BWR/2	0.1 ft ²	Suction Break	Figure Group 3.5.2.1-3
BWR/4	0.1 ft ²	Suction Break	Figure Group 3.5.2.1-4
BWR/6	0.1 ft ²	Suction Break	Figure Group 3.5.2.1-5
BWR/2	DBA	Recirculation Break	Figure Group 3.5.2.1-6
BWR/4	DBA	Suction Break	Figure Group 3.5.2.1-7

3.5.2.1.1.2 STEAM BREAKS

These cases show the response to a steamline break inside the containment with 1 LPCS operating.

BWR/2	0.1 ft ²	Steamline Break	Figure Group 3.5.2.1-8
BWR/4	0.1 ft ²	Steamline Break	Figure Group 3.5.2.1-9

These cases show the response for a steamline break outside the containment.

BWR/2	0.5 ft ²	Outside Steamline Break	Figure Group 3.5.2.1-10
BWR/4	0.5 ft ²	Outside Steamline Break	Figure Group 3.5.2.1-11

1549 001

3.5.2.1.2 1LPCI + ADS ONLY

3.5.2.1.2.1 LIQUID BREAKS

The following case shows the response to a very small break LOCA with 1 LPCI and the ADS available.

BWR/4 0.001 ft² Suction Break Figure Group 3.5.2.1-12

These cases show the response for the two basic BWR configurations with LPCI systems.

BWR/4 0.1 ft² Suction Break Figure Group 3.5.2.1-13

BWR/6 0.1 ft² Suction Break Figure Group 3.5.2.1-14

BWR/4 DBA Suction Break Figure Group 3.5.2.1-15

3.5.2.1.2.2 STEAM BREAKS

This case shows an inside steamline break for comparison.

BWR/4 0.1 ft² Steamline Break Figure Group 3.5.2.1-16

3.5.2.1.3 BATTERY FAILURE

(1 LPCI + 1LPCS + ADS Available)

These cases show the response with two systems operating and also form part of the battery failure analysis.

3.5.2.1.3.1 LIQUID BREAKS

BWR/4 0.1 ft² Suction Breaks Figure Group 3.5.2.1-17

BWR/6 0.1 ft² Suction Breaks Figure Group 3.5.2.1-18

3.5.2.1.3.2 STEAM BREAKS

BWR/4 0.1 ft² Inside Steamline Break Figure Group 3.5.2.1-19

BWR/6 0.1 ft² Inside Steamline Break Figure Group 3.5.2.1-20

1549 002

3.5.2.1.4 LPCI DIVERSION

The following case is representative of the cases where some of the LPCI flow is diverted to containment spray. One LPCI pump is assumed available after diversion.

BWR/6 0.022 ft² Core Spray Line Break Figure Group 3.5.2.1-21

3.5.2.1.5 FAILURE TO ACTUATE ADS

The following cases were analyzed to support the Guidelines for the case where the ADS system was not initiated (by multiple failures or operator error). For these cases, the low pressure ECC systems (LPS) are assumed available but unable to inject because the vessel pressure is too high. The effect of allowing the recirculation pumps to remain running is also included in this section. This section is intended to show approximately the time available to initiate the ECCS without significant core heatup.

BWR/2	0.1 ft ²	Suction Break	W/1LPCS	Fig. Group 3.5.2.1-22
BWR/6	0.1 ft ²	Suction Break	W/1LPCI	Fig. Group 3.5.2.1-23
BWR/6	0.1 ft ²	Suction Break	W/1LPCI (Recirculation Pumps On)	Fig. Group 3.5.2.1-24
BWR/6	0.1 ft ²	Steamline Break	W/1LPCI	Fig. Group 3.5.2.1-25
BWR/6		Isolation Event	W/LPS	Fig. Group 3.5.2.1-26
BWR/6		Isolation Event	W/LPS (Recirculation Pumps On)	Fig. Group 3.5.2.1-27

MITIGATING ACTIONS

These cases support the operator guidelines for the above conditions of ADS failure.

BWR/6		Isolation Event	W/HPCS	Fig. Group 3.5.2.1-28
BWR/2		Isolation Event	W/Isolation Condensers and 1LPCS	Fig. Group 3.5.2.1-29
BWR/6		Isolation Event	W/1LPCI, 1 SRV OPEN*	Fig. Group 3.5.2.1-30
BWR/6		Isolation Event	W/1LPCI, 3 SRV's OPEN*	Fig. Group 3.5.2.1-31
BWR/6		Isolation Event	W/1LPCI, 5 SRV's OPEN*	Fig. Group 3.5.2.1-32
BWR/6		Isolation Event	W/1LPCI, 7 SRV's OPEN*	Fig. Group 3.5.2.1-33

3.5.2.1.6 LOW PRESSURE SYSTEMS UNAVAILABLE

This analysis demonstrates the operator actions for a blowdown with the low pressure ECCS unavailable. The purpose is to show the approximate time available for the operator to repressurize the vessel and restart the high pressure systems.

BWR/4	0.1 ft ²	Suction Break	W/HPCI, ADS@600 SEC	Fig. Group 3.5.2.1-34
BWR/6	0.05 ft ²	Suction Break	W/HPCS, ADS@600 SEC	Fig. Group 3.5.2.1-35
BWR/4	0.1 ft ²	Suction Break	W/HPCI, CLOSE ADS @ 1500 SEC	Fig. Group 3.5.2.1-36
BWR/4	0.1 ft ²	Suction Break	W/HPCI, CLOSE ADS @ 4500 SEC	Fig. Group 3.5.2.1-37

3.5.2.1.7 STUCK OPEN RELIEF VALVE

This section shows the system response to a stuck open relief valve. The purpose is to show the approximate time available for operator action. The effects of the mitigating actions are shown in previous sections.

BWR/4		Isolation Event	W/SORV, NO ECCS	Fig. Group 3.5.2.1-38
BWR/4		Isolation Event	W/SORV AND 1LPCI	Fig. Group 3.5.2.1-39

*SRV's actuated at L1 plus 600 seconds

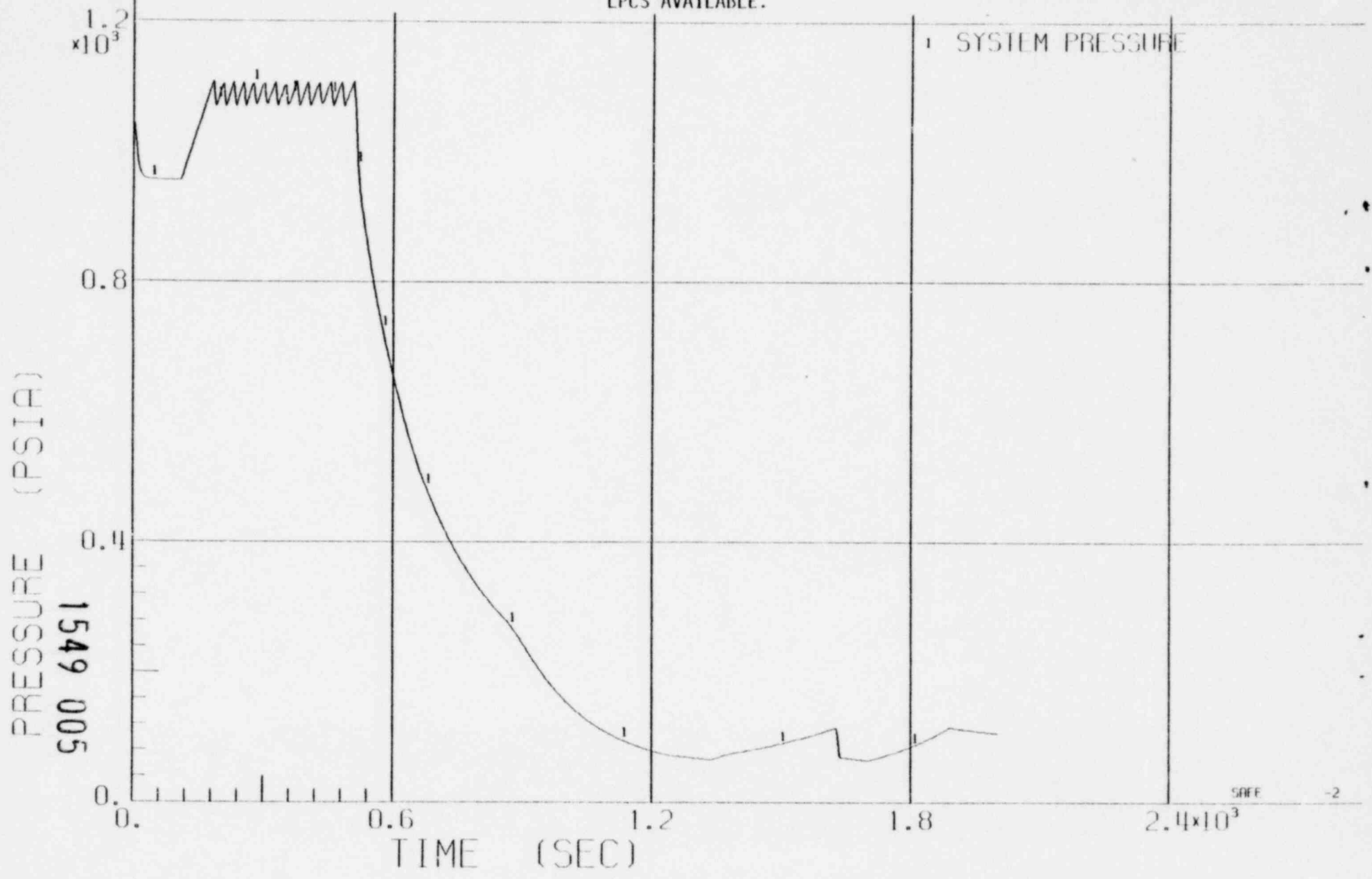
3.5.2.1.8 CONCLUSIONS

The analyses presented in this section show that adequate core cooling can be maintained whenever the pressure vessel is depressurized and one low pressure system is injecting. The analyses also show that the operator has considerable time to restart systems that might have failed, prior to any significant core heatup. Additional analyses were performed for the extremely unlikely conditions of the multiple failures of the following makeup systems: HPCS, HPCI, LPCS, LPCI, RCIC, FW, IC, CRD and condensate pumps. Even for these extremely degraded loss of inventory events, where no water make-up systems are available, the operator has at least half an hour or more, before any significant core heatup is expected. These conclusions are valid for any loss of inventory event involving a small pipe break or isolation with loss of inventory through the relief valves.

1549 004

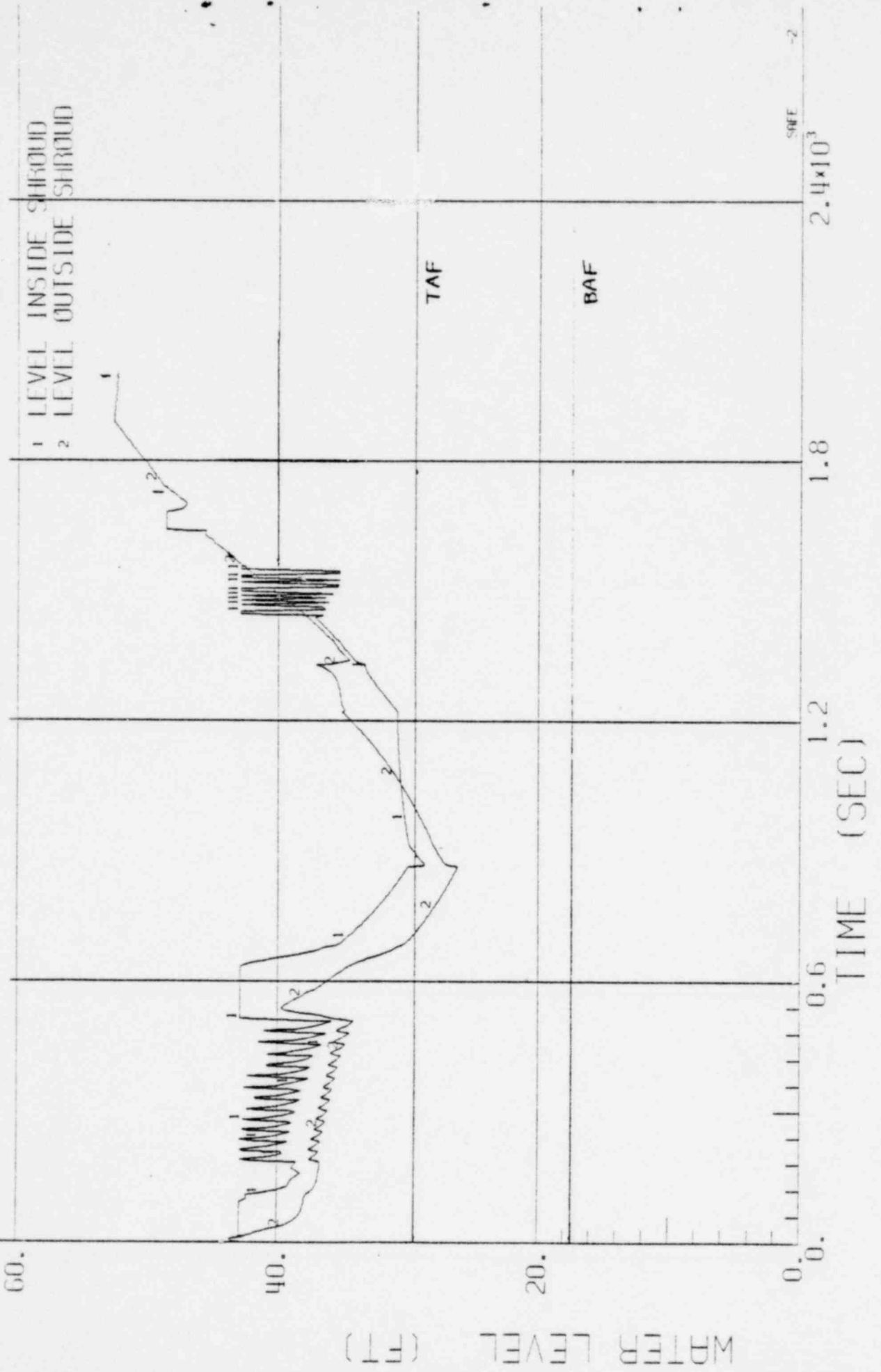
BWR/2

FIGURE 3.5.2.1 - 1.1 SYSTEM PRESSURE VS TIME FOR A 0.001 ft² SUCTION BREAK WITH ONE LPCS AVAILABLE.



BWR/2

FIGURE 3.5.2.1 - 1.2 WATER LEVEL VS TIME FOR A 0.001 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.

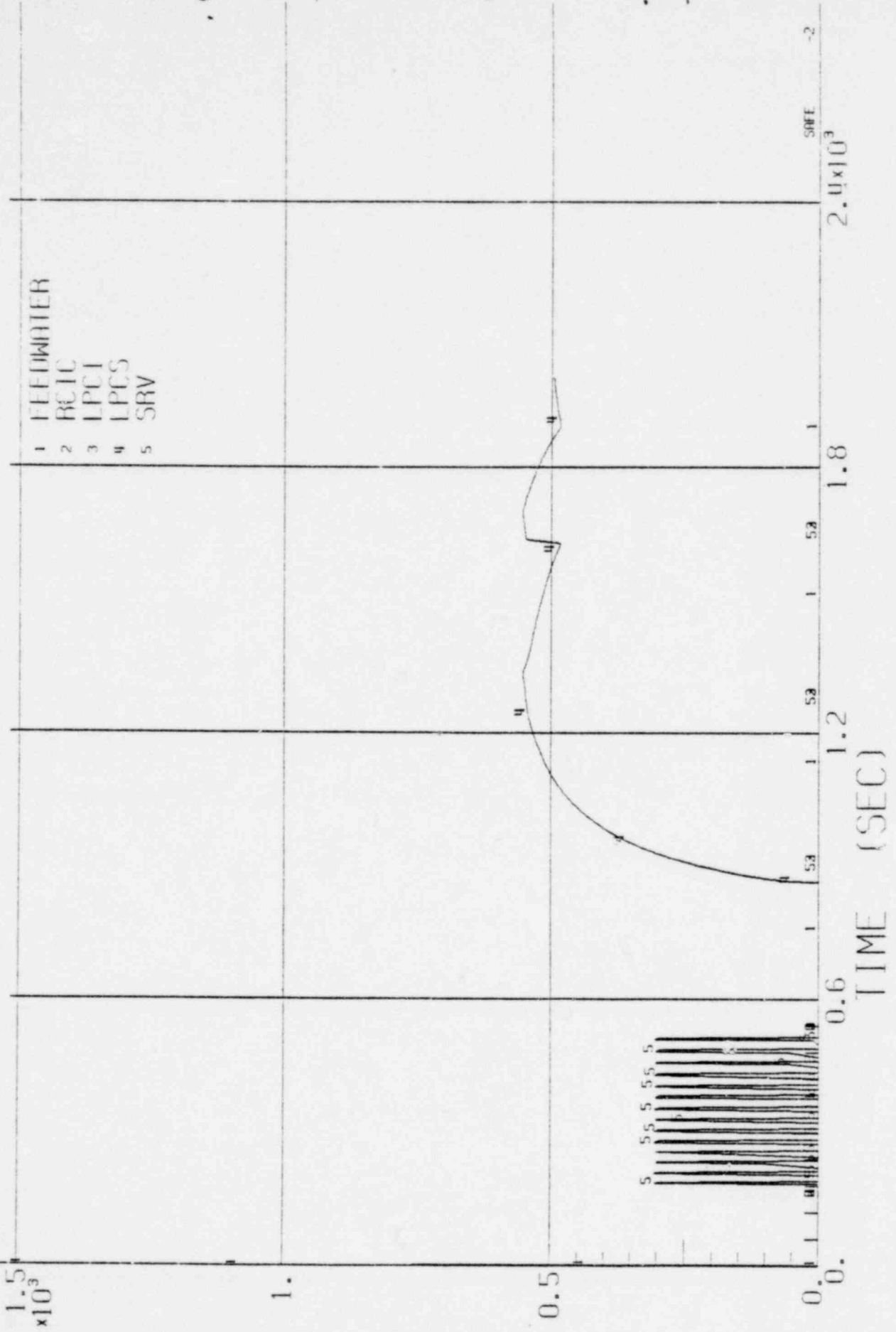


WATER LEVEL (FT)

TIME (SEC)

BWR/2

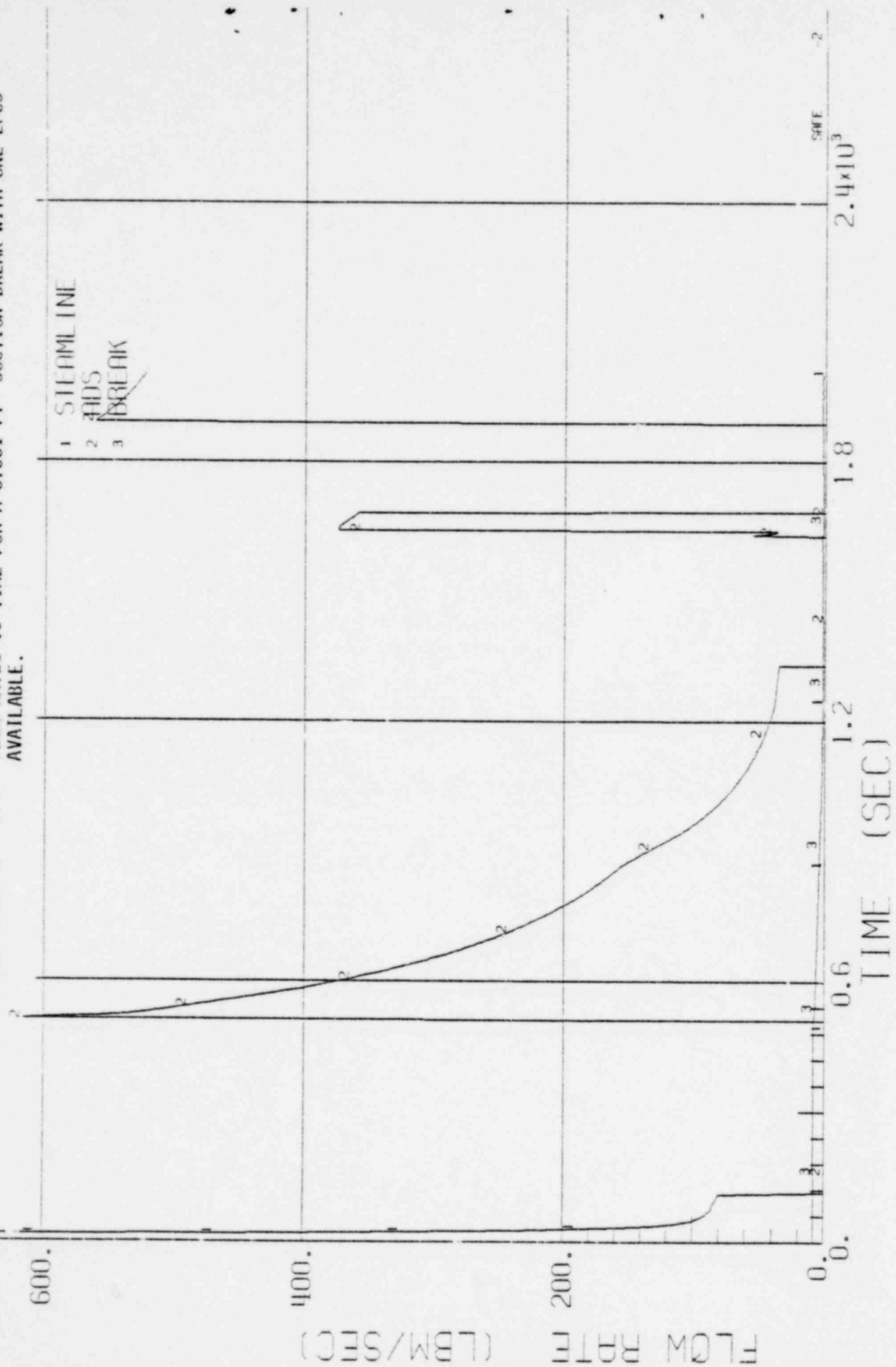
FIGURE 3.5.2.1 - 1.3 SYSTEM FLOW RATES VS TIME FOR A 0.001 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



1549 007 FLOW RATE (LBM/SEC)

BWR/2

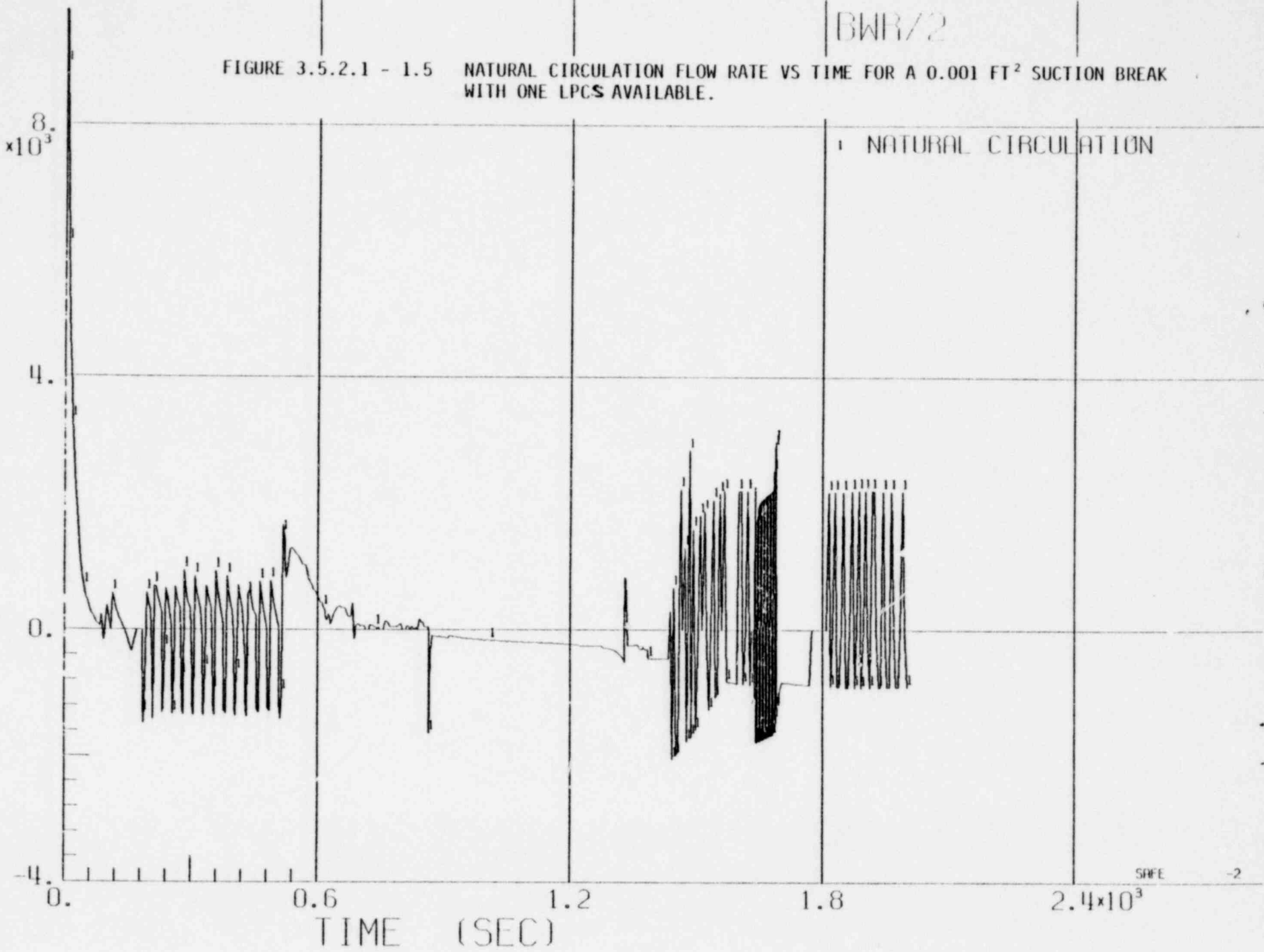
FIGURE 3.5.2.1 - 1.4 FLOW RATES VS TIME FOR A 0.001 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



BWR/2

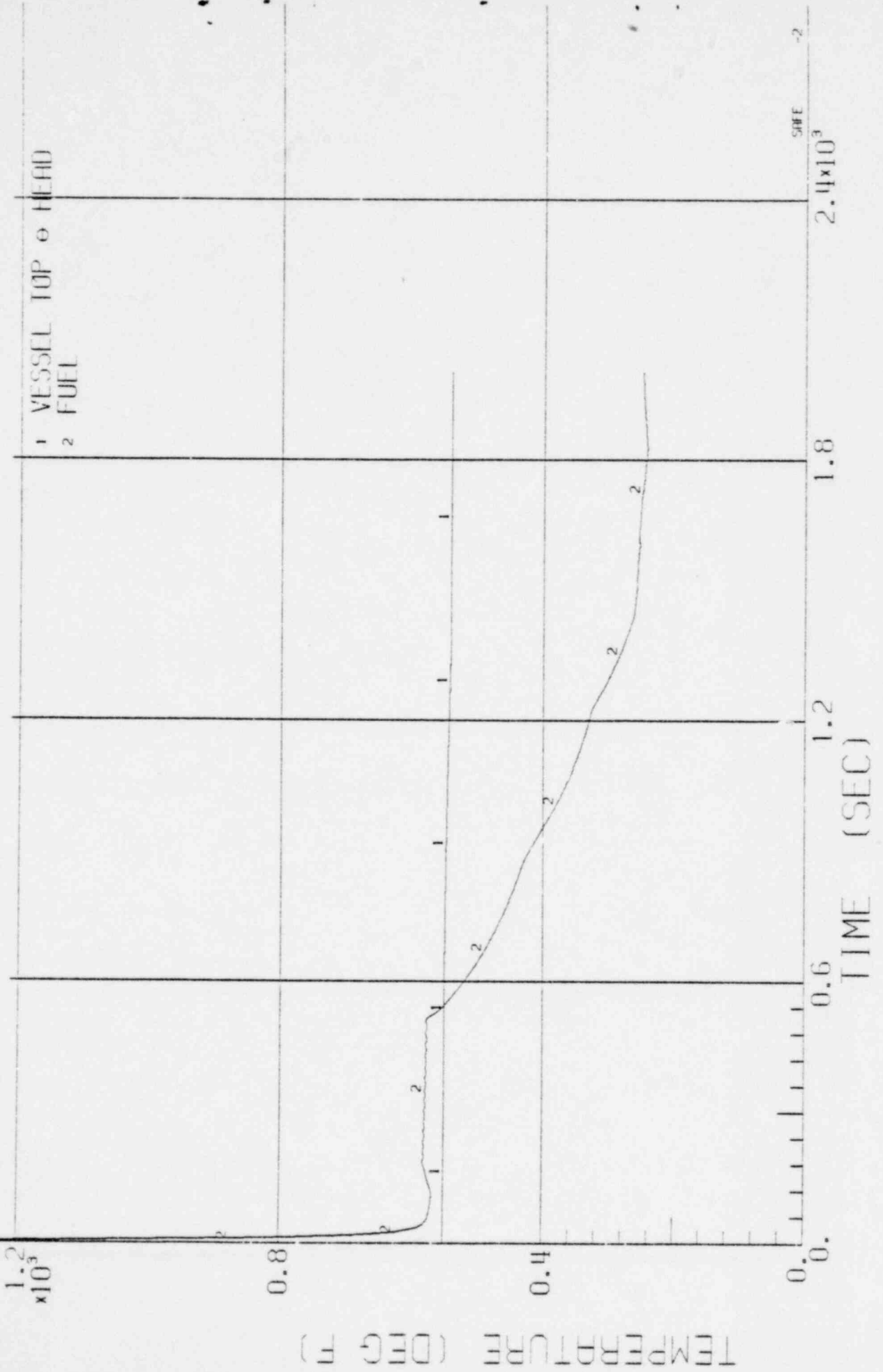
FIGURE 3.5.2.1 - 1.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.001 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.

600 607A
1549 009
FLOW RATE (LBM/SEC)



BWR/2

FIGURE 3.5.2.1 - 1.6 TEMPERATURE VS TIME FOR A 0.001 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



TEMPERATURE (DEG F)

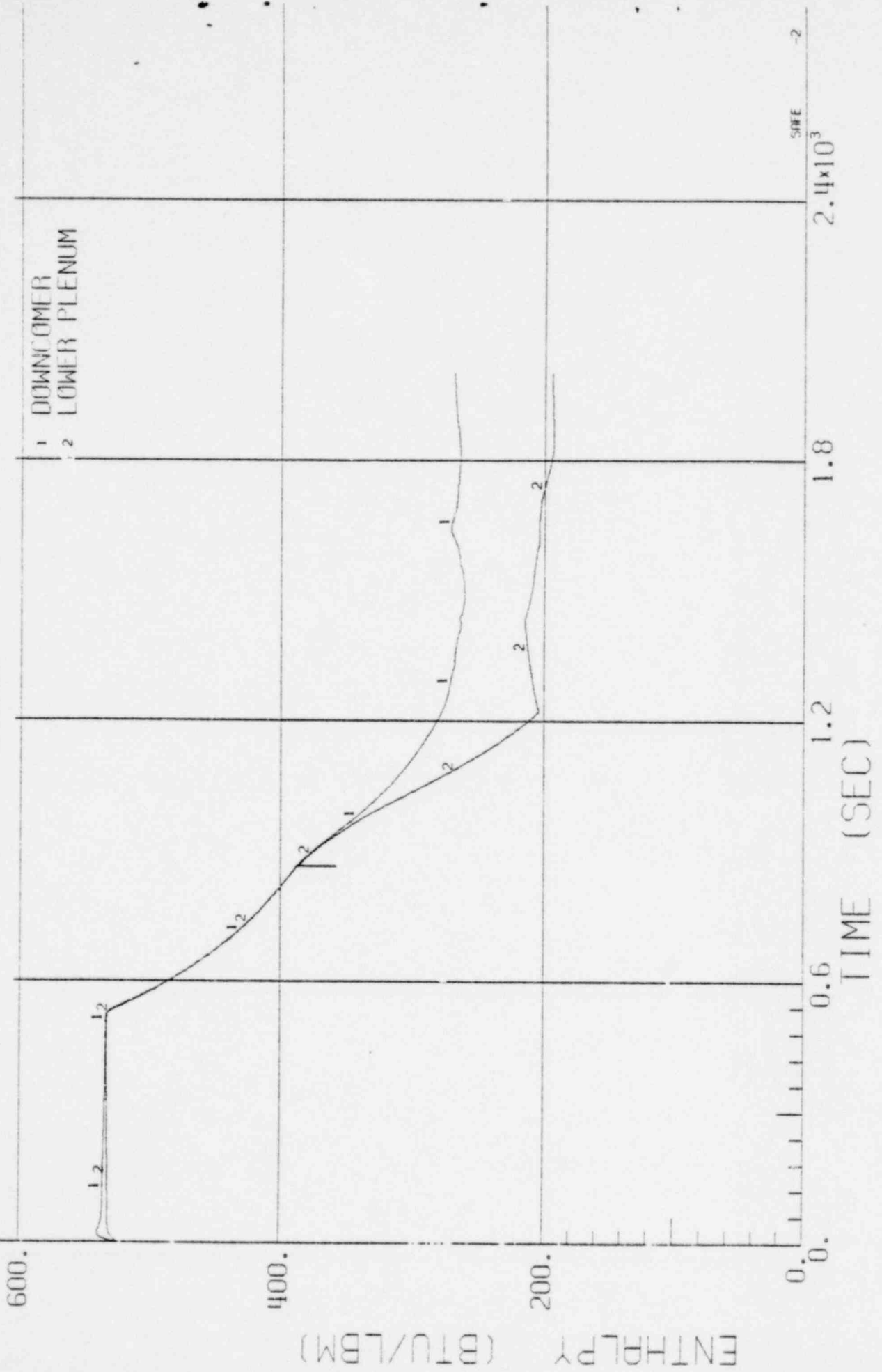
TIME (SEC)

010 6451

SAFE -2

BWR/2

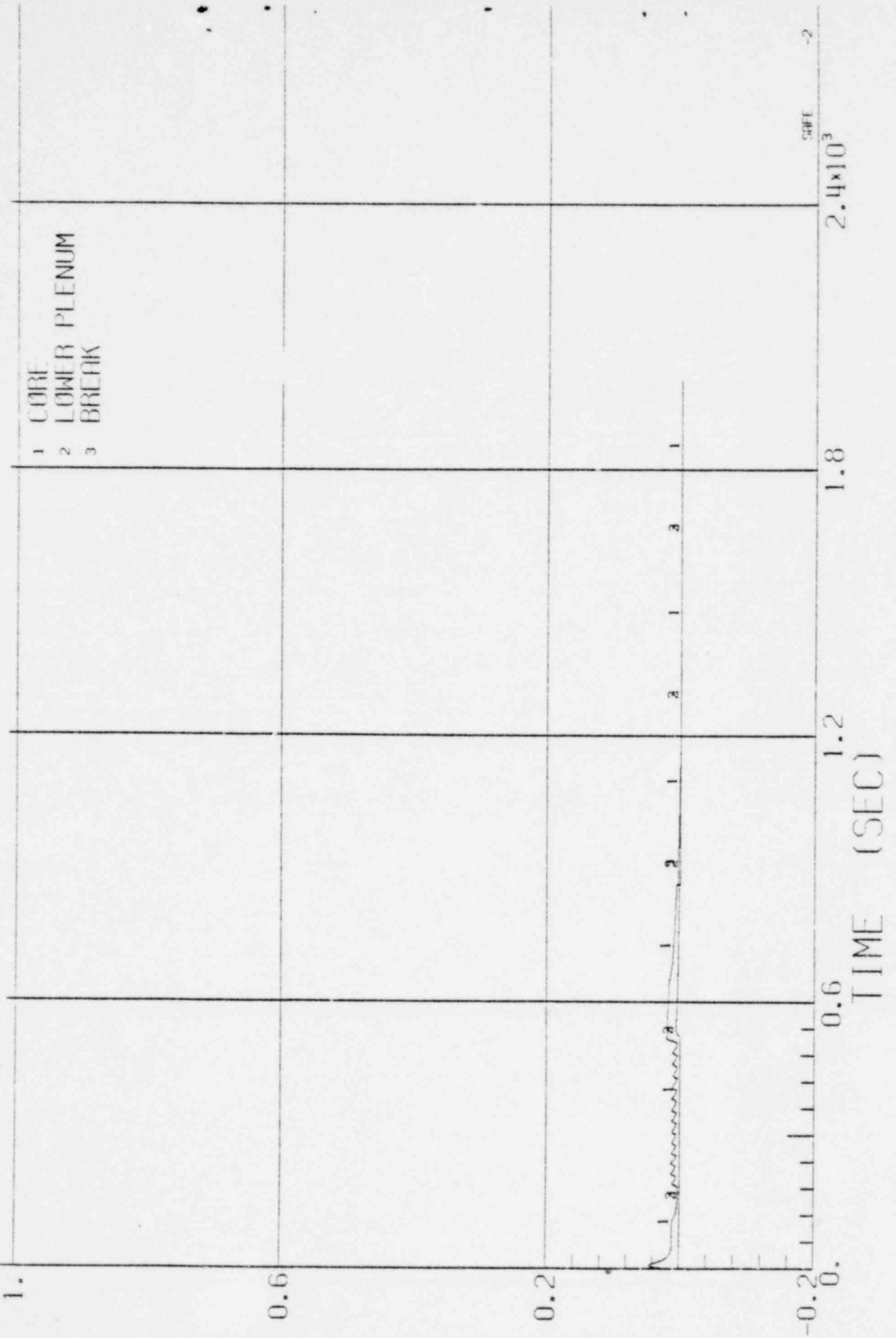
FIGURE 3.5.2.1 - 1.7 ENTHALPY VS TIME FOR A 0.001 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



110 6451

BWR/2

FIGURE 3.5.2.1 - 1.8 QUALITY VS TIME FOR A 0.001 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.

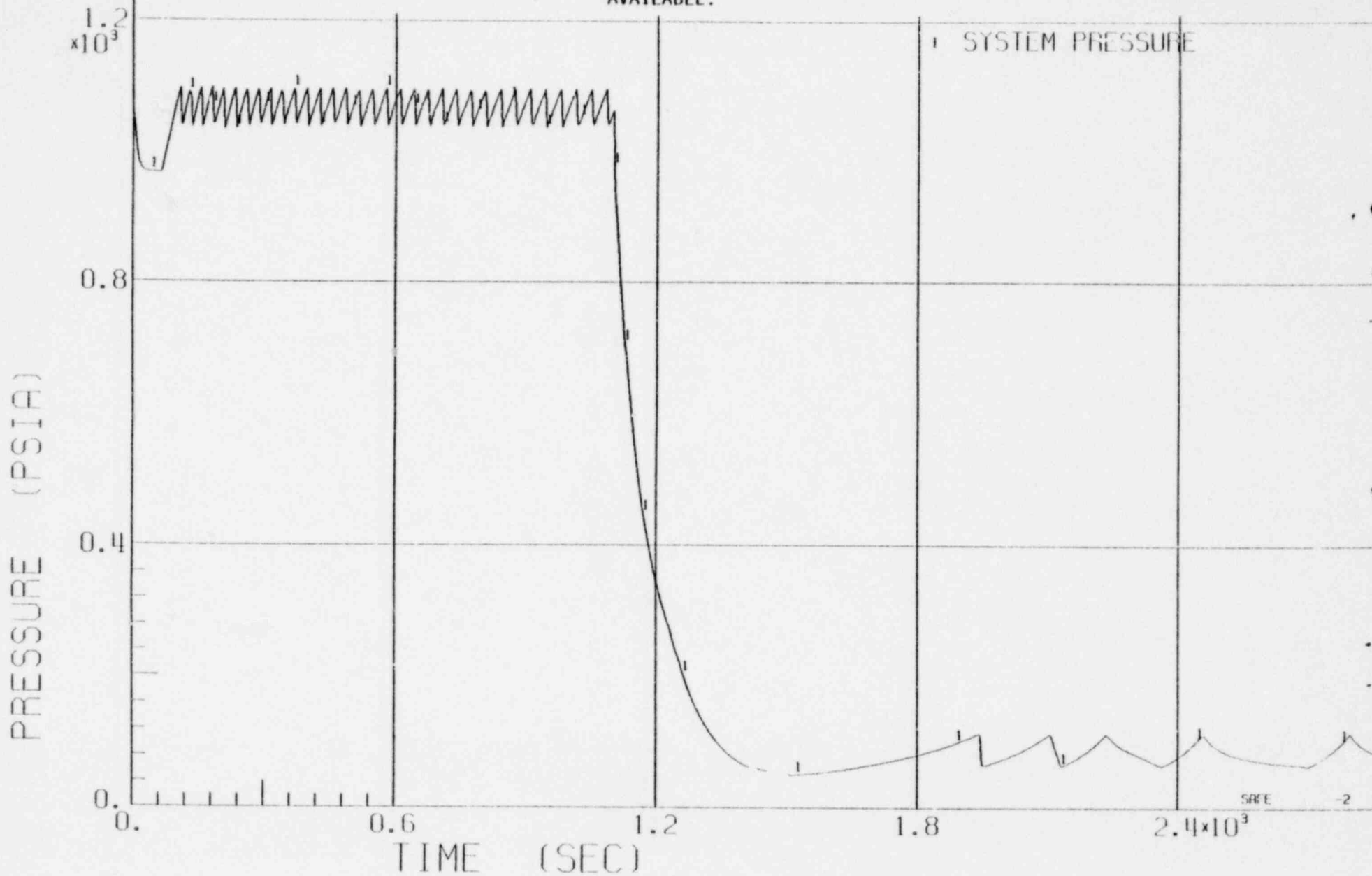


QUALITY

1549 012

BWR/4-218

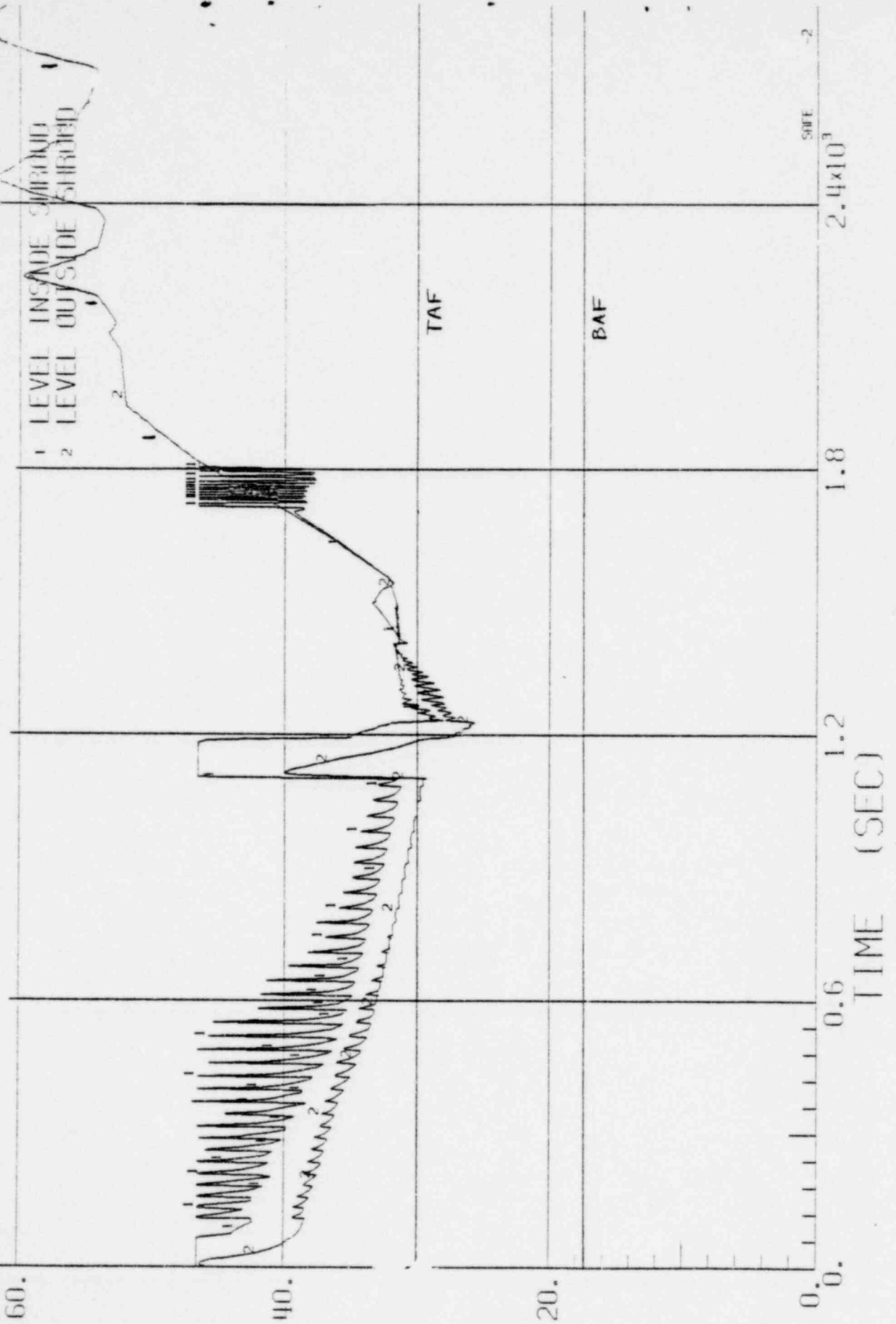
FIGURE 3.5.2.1 - 2.1 SYSTEM PRESSURE VS TIME FOR A 0.001 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



1549 013

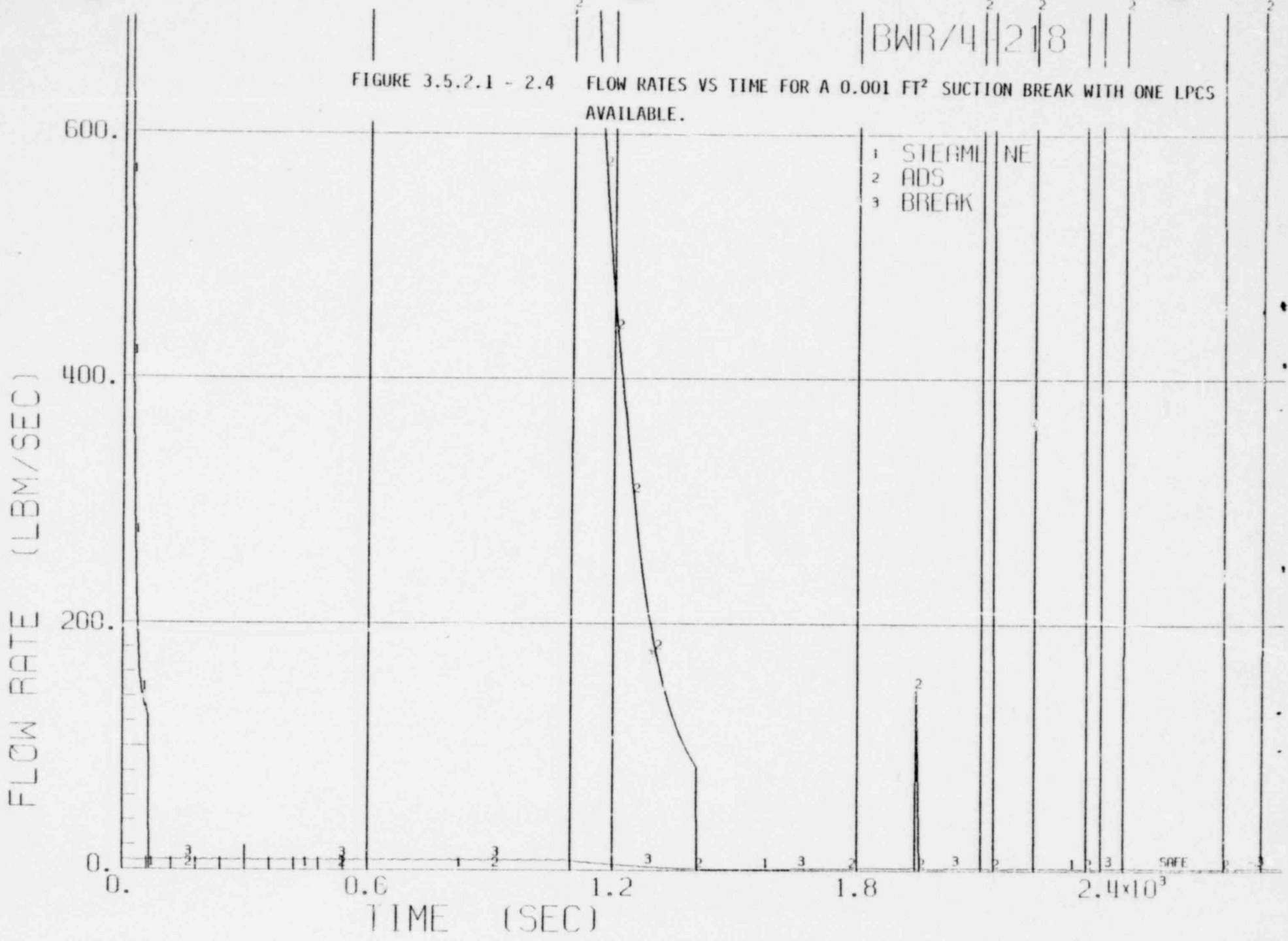
BWR/4-218

FIGURE 3.5.2.1 - 2.2 WATER LEVEL VS TIME FOR A 0.001 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



1549 014
WATER LEVEL (FT)

1549 016

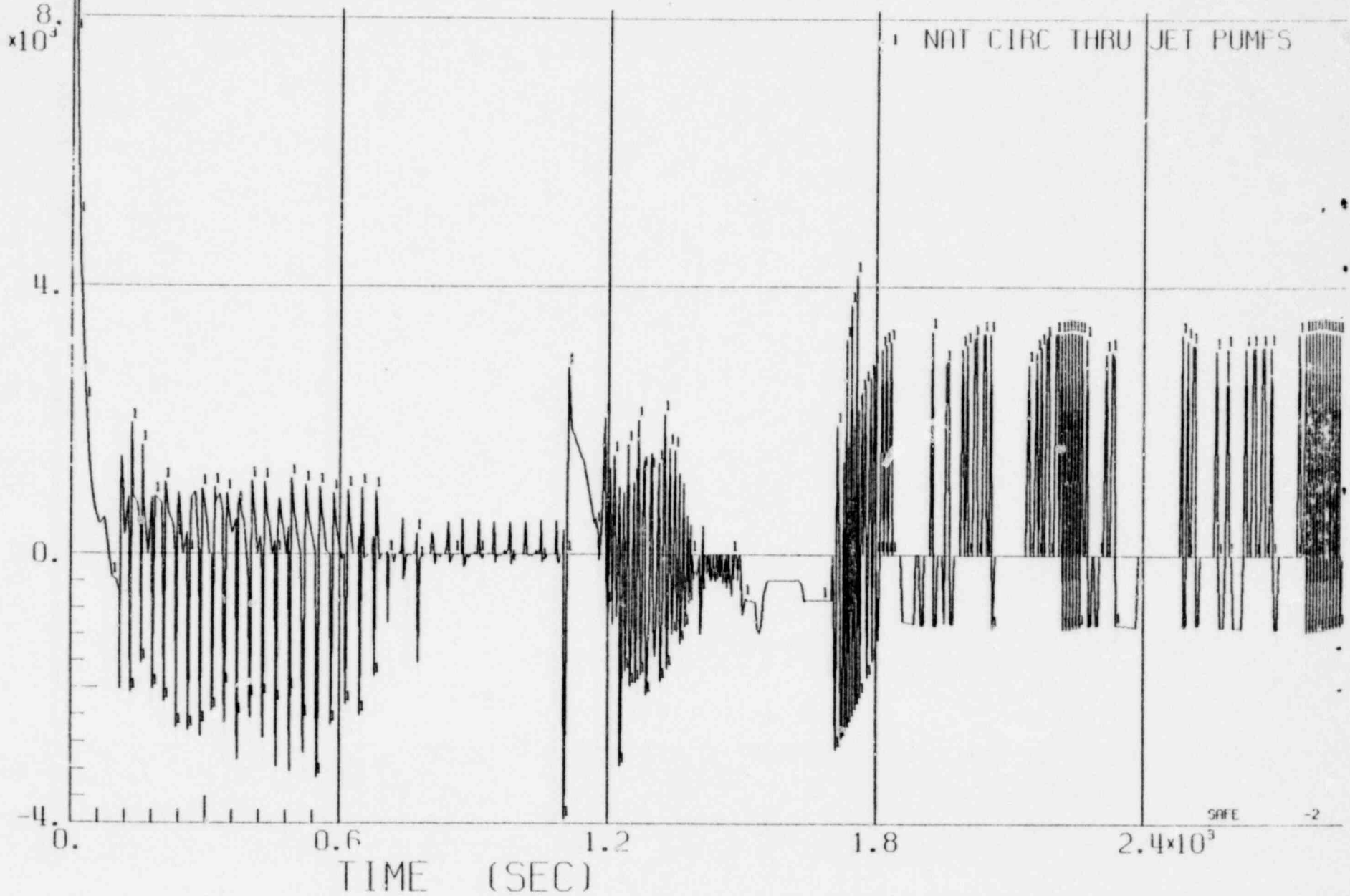


SAFE

BWR/4-218

FIGURE 3.5.2.1 - 2.5

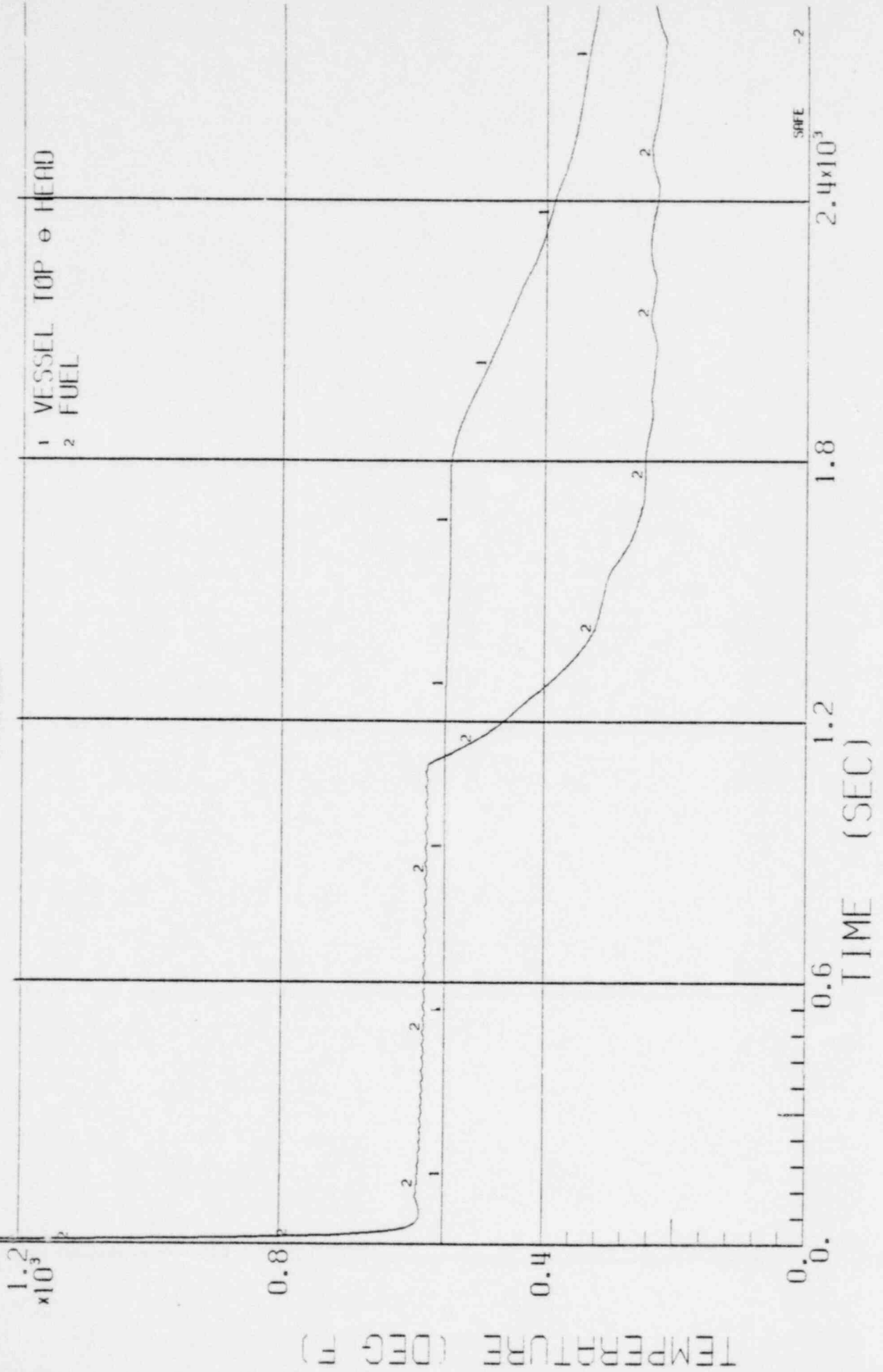
NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.001 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



1549 017
FLOW RATE (LBM/SEC)
MOTIA

BWR/4-218

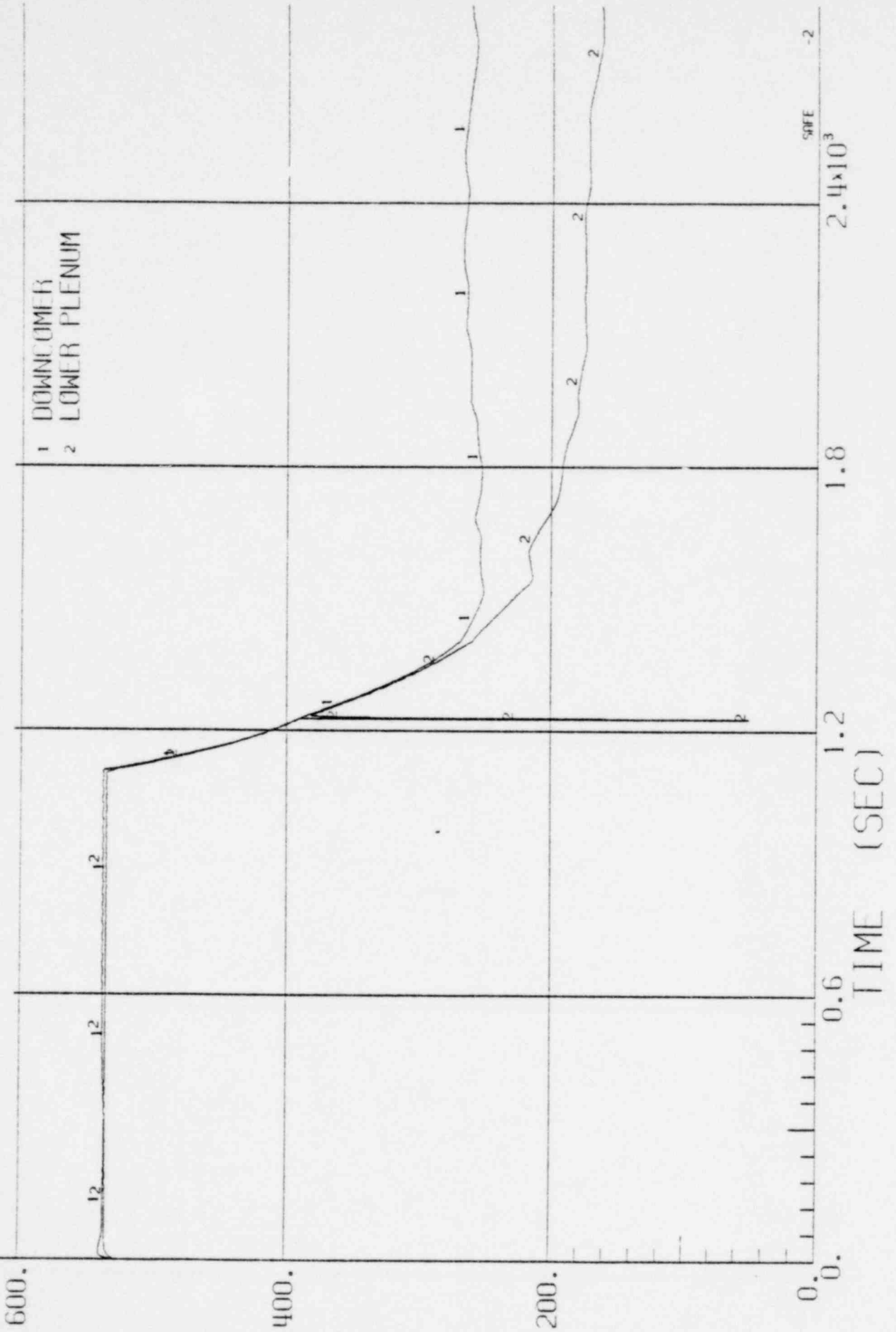
FIGURE 3.5.2.1 - 2.6 TEMPERATURE VS TIME FOR A 0.001 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



810 018 1549

BWR/4-218

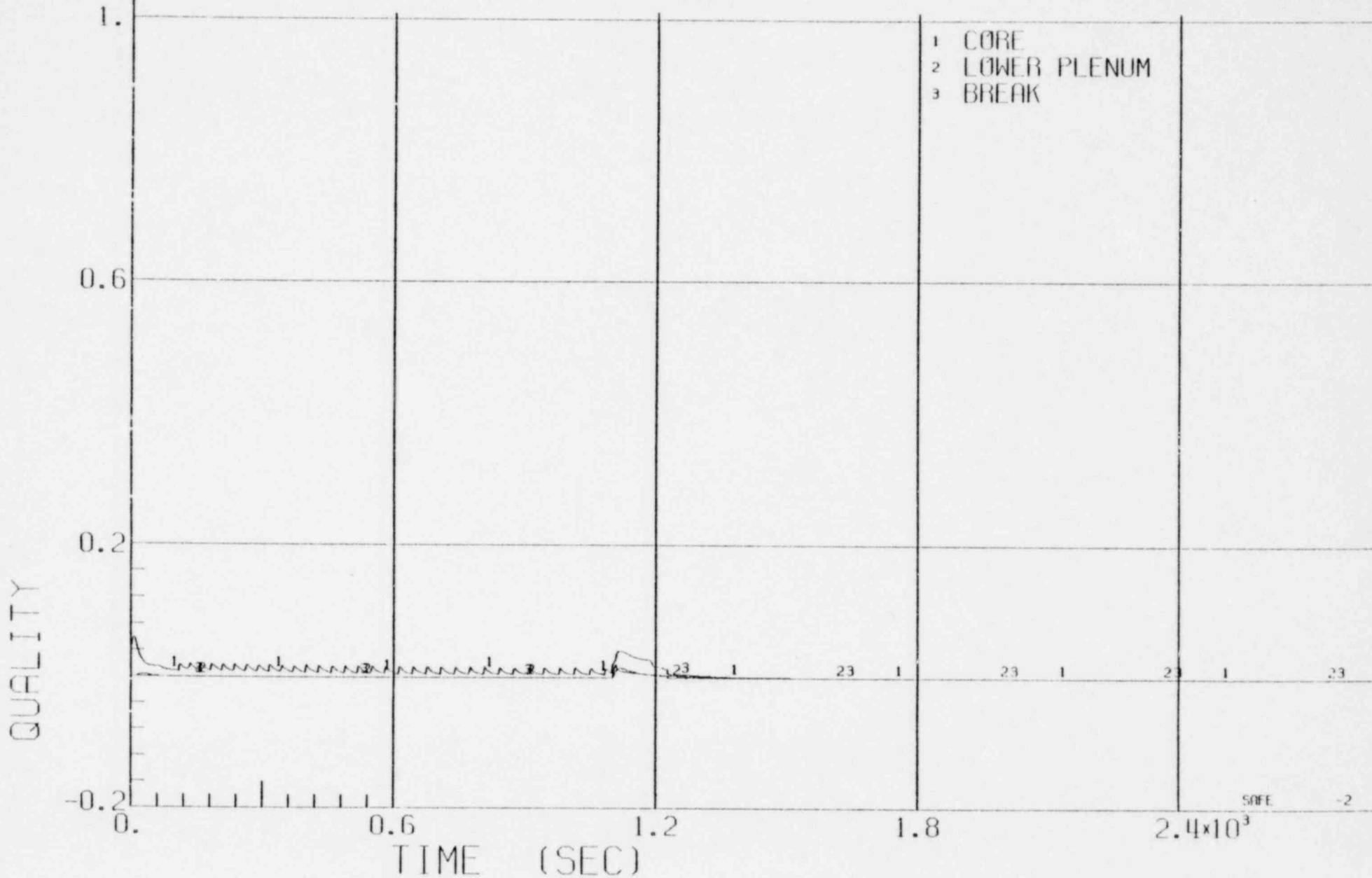
FIGURE 3.5.2.1 - 2.7 ENTHALPY VS TIME FOR A 0.001 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



ENTHALPY (BTU/LBM)
1549 019

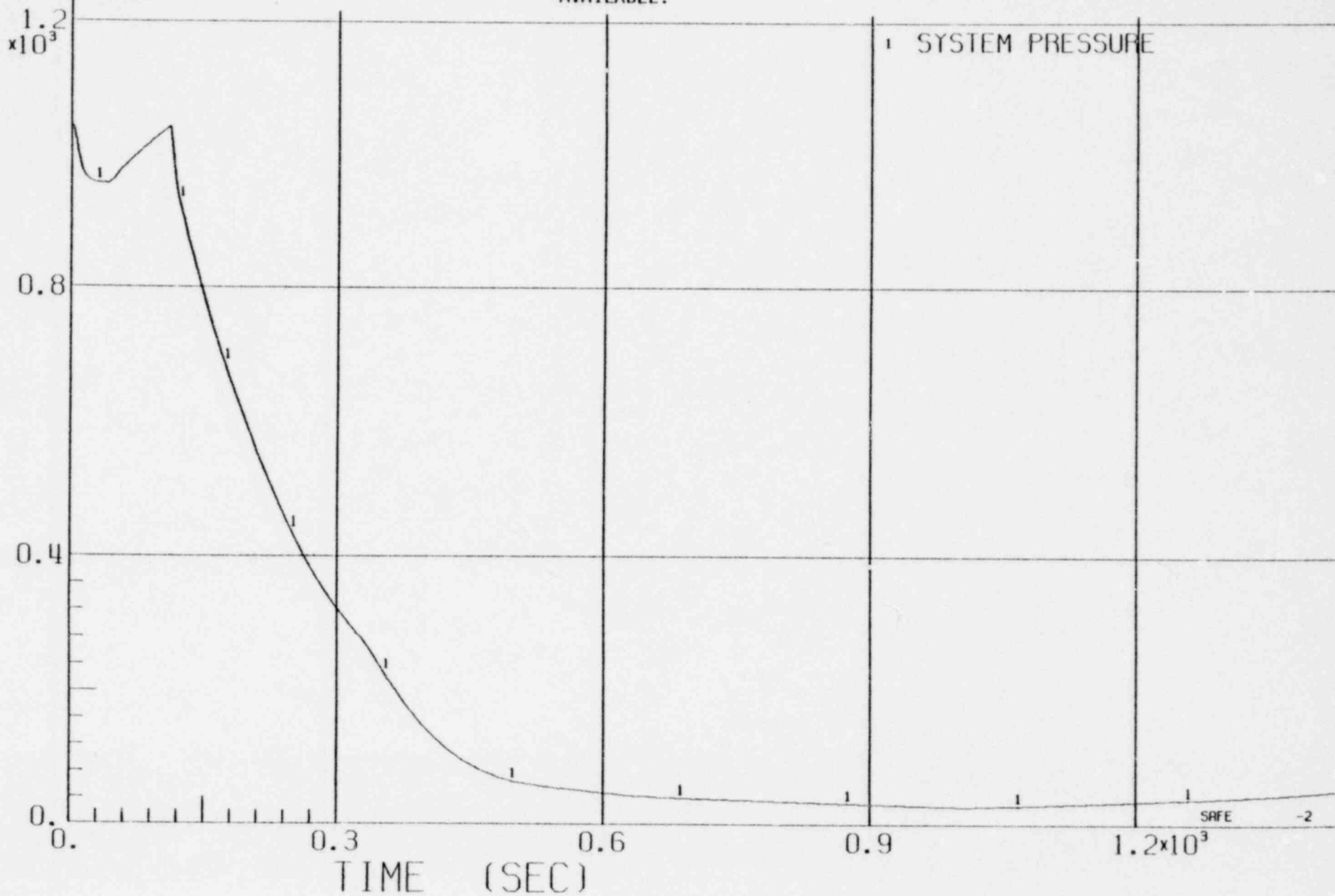
BWR/4-218

FIGURE 3.5.2.1 - 2.8 QUALITY VS TIME FOR A 0.001 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



BWR/2

FIGURE 3.5.2.1 - 3.1 SYSTEM PRESSURE VS TIME FOR A 0.10 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



PRESSURE (PSIA)

TIME (SEC)

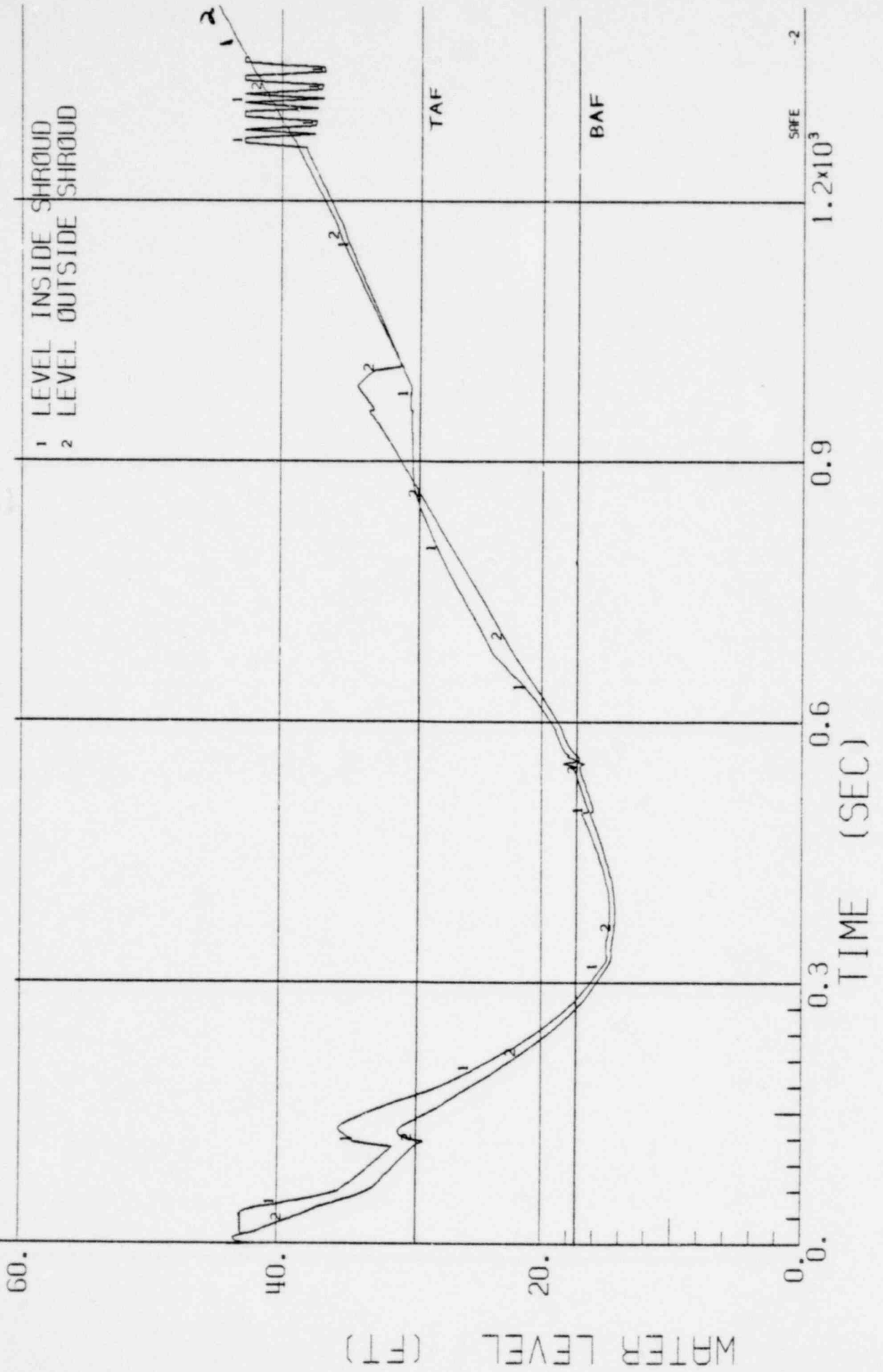
SAFE

-2

1549 021

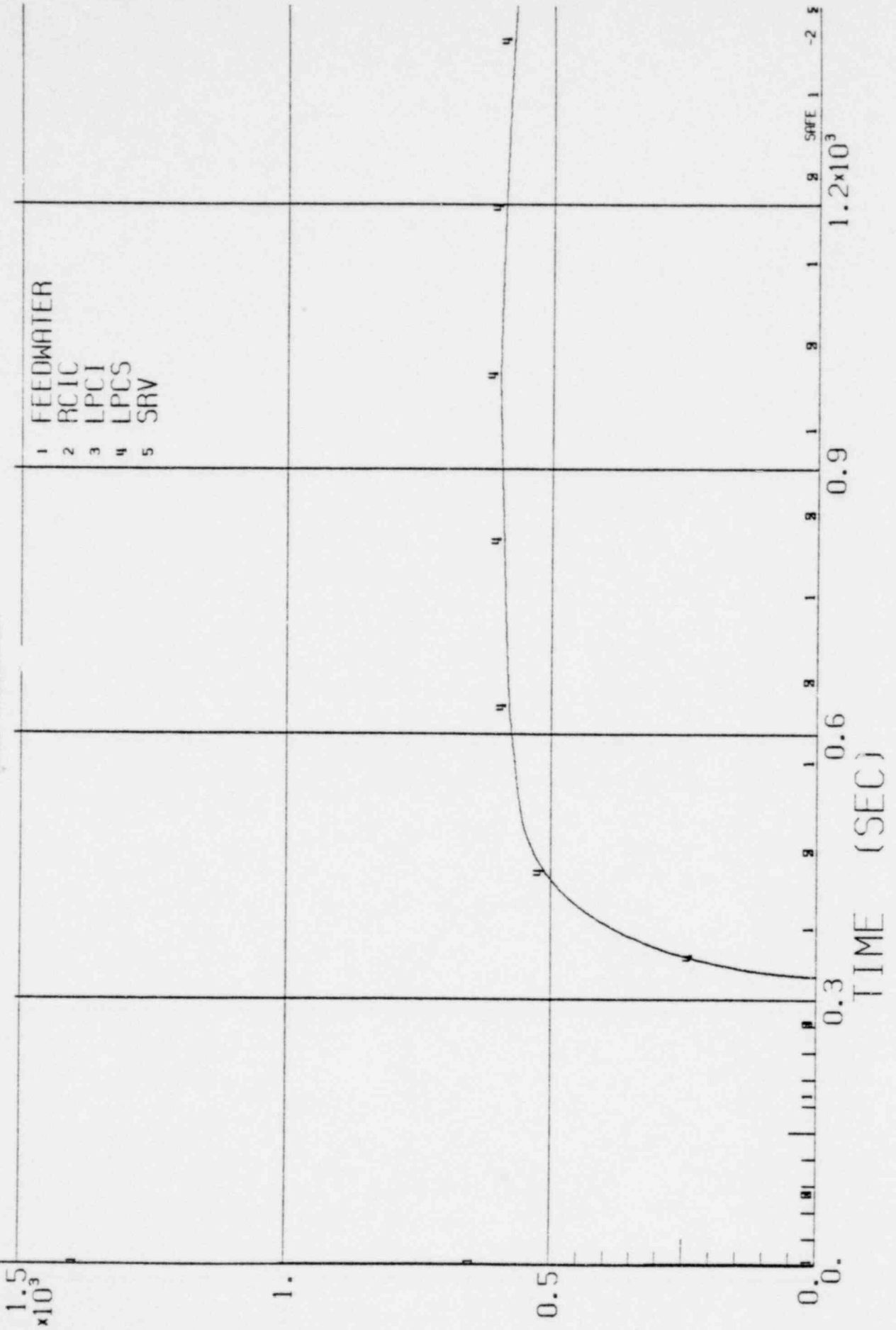
BWR/2

FIGURE 3.5.2.1 - 3.2 WATER LEVEL VS TIME FOR A 0.10 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



BWR/2

FIGURE 3.5.2.1 - 3.3 SYSTEM FLOW RATES VS TIME FOR A 0.10 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



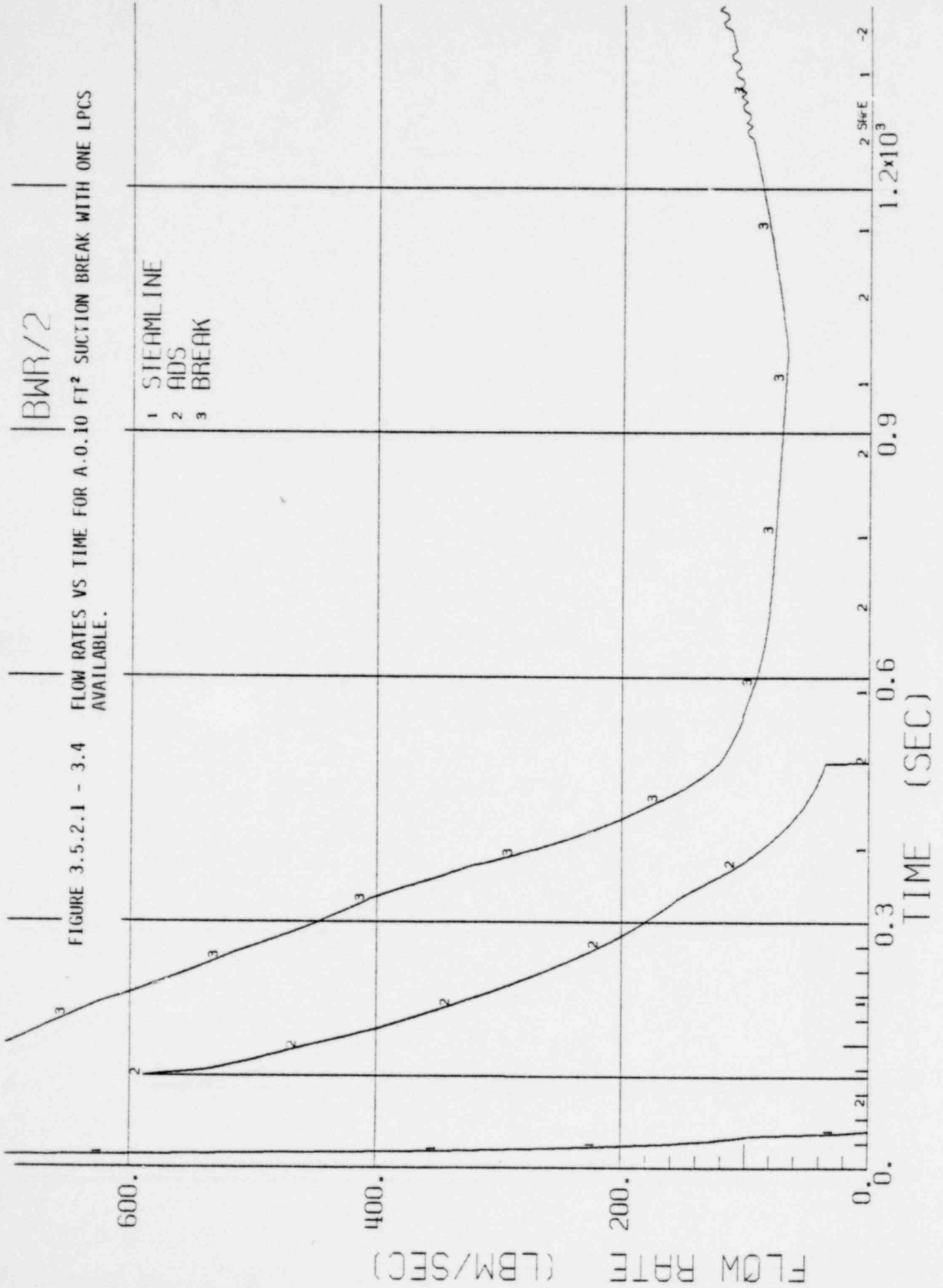
FLOW RATE (LBM/SEC)

1549 023

BWR/2

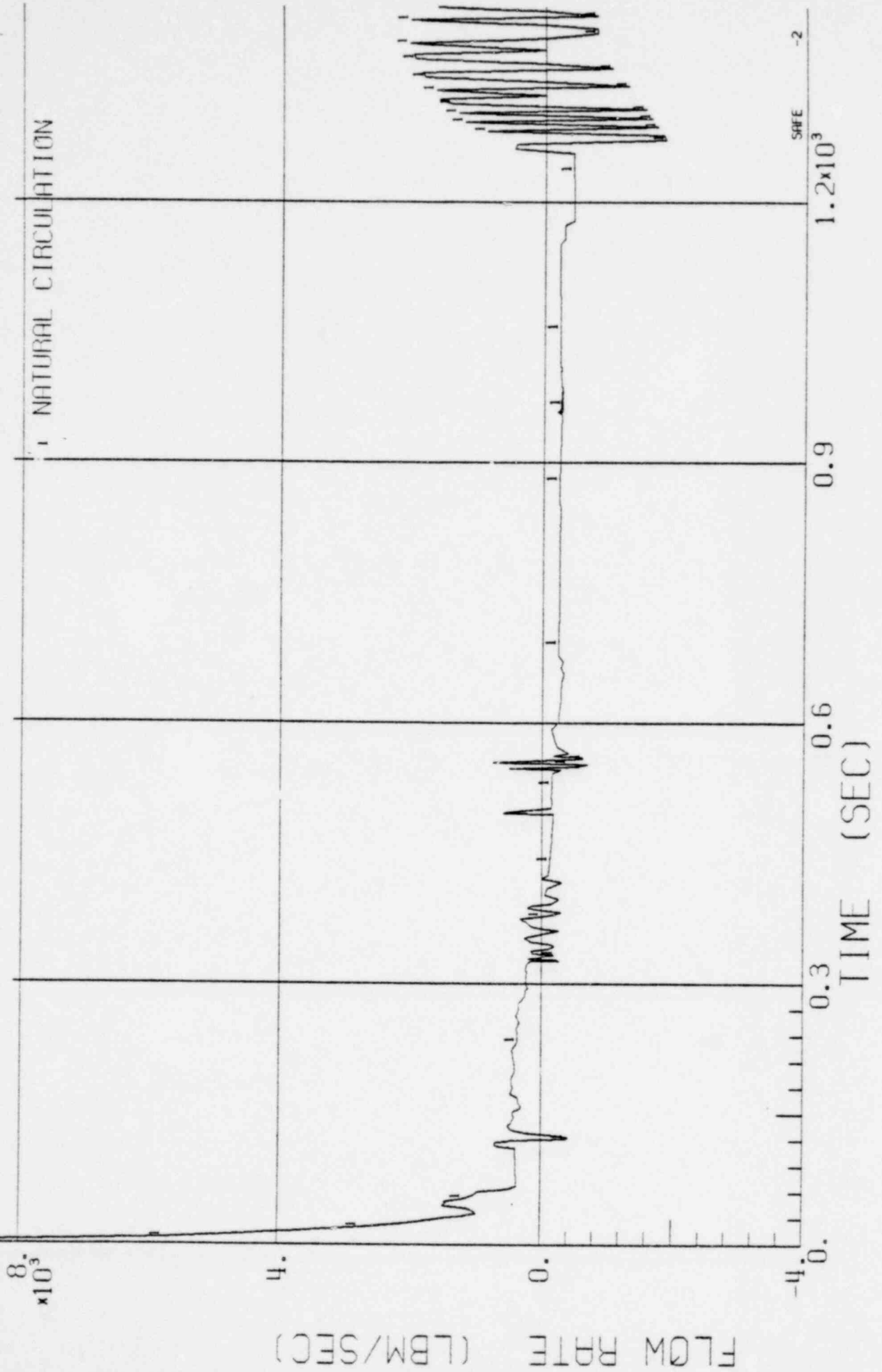
FIGURE 3.5.2.1 - 3.4 FLOW RATES VS TIME FOR A.0.10 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.

- 1 STEAMLINER
- 2 ADS
- 3 BREAK



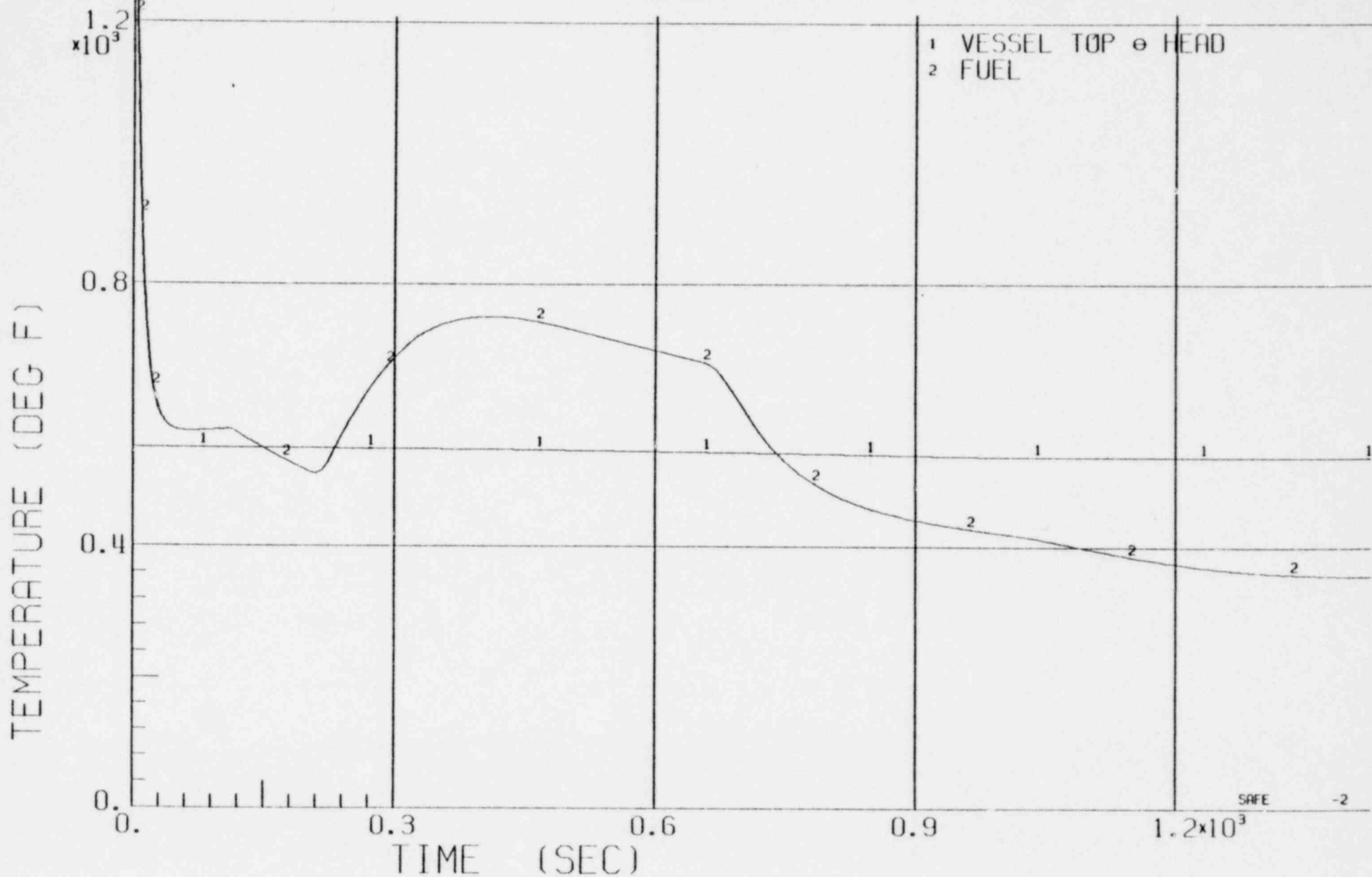
BWR/2

FIGURE 3.5.2.1 - 3.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.10 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



BWR/2

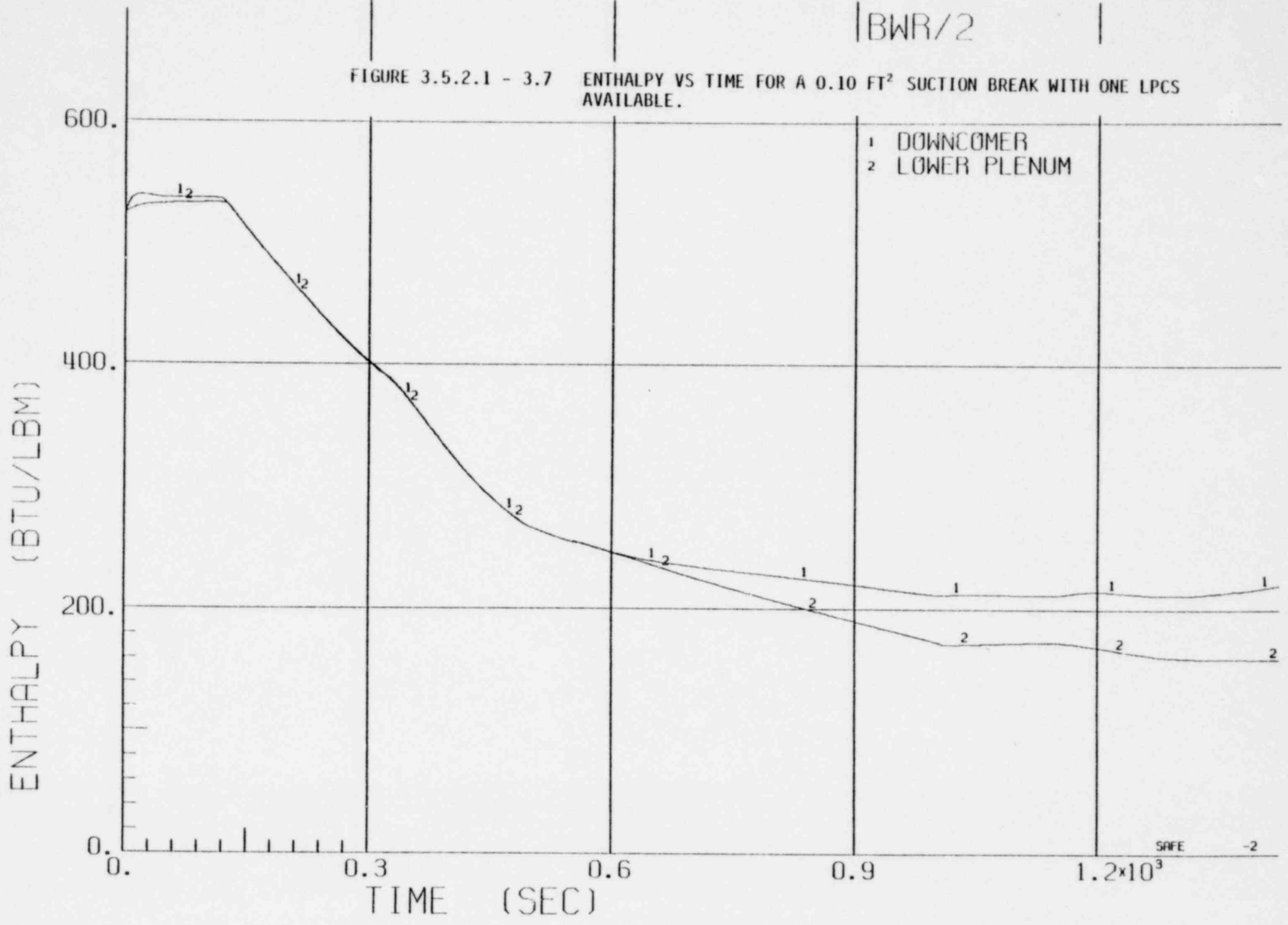
FIGURE 3.5.2.1 - 3.6 TEMPERATURE VS TIME FOR A 0.10 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



1549 024

BWR/2

FIGURE 3.5.2.1 - 3.7 ENTHALPY VS TIME FOR A 0.10 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



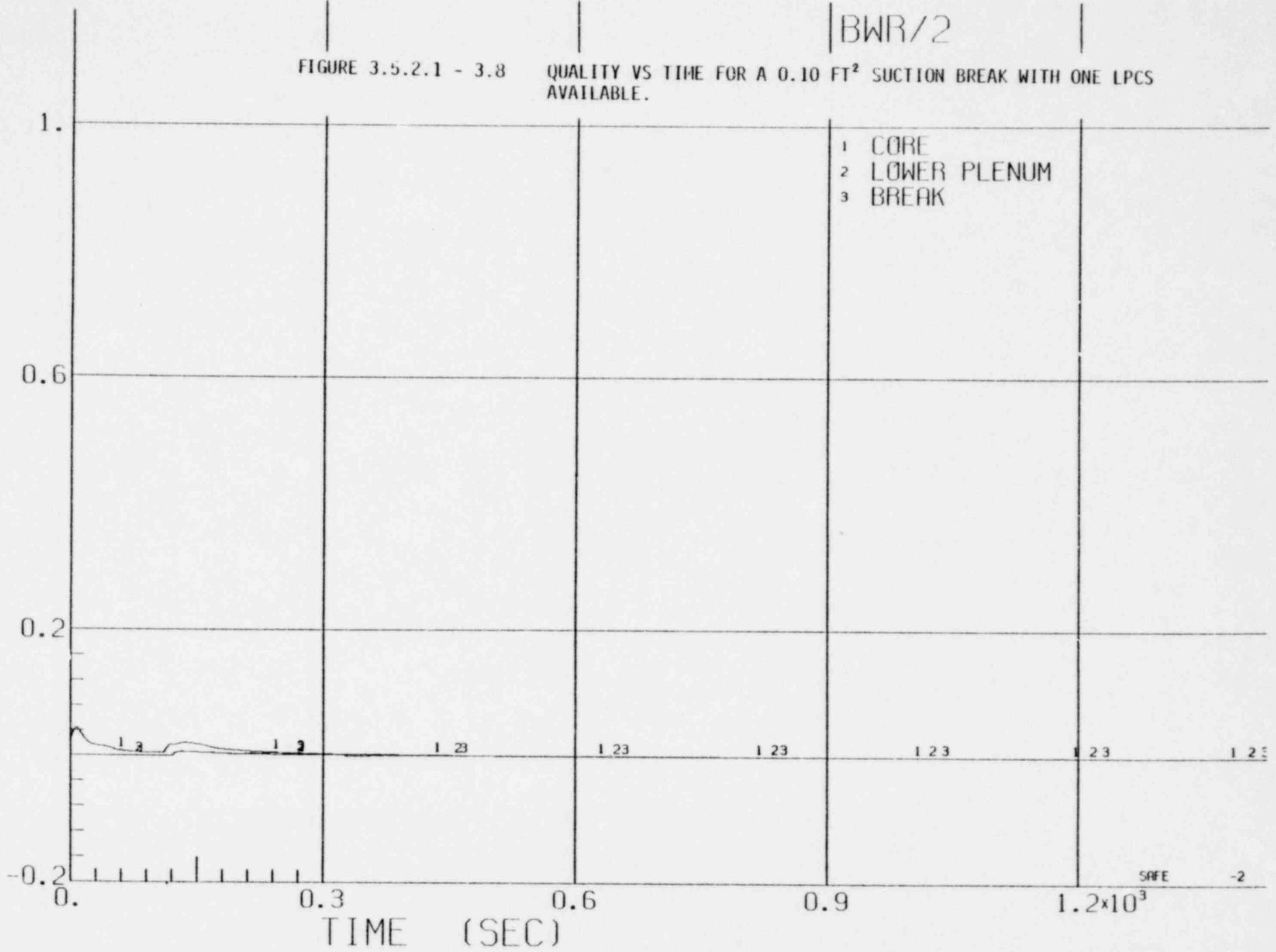
ENTHALPY (BTU/LBM)
1549 027

BWR/2

FIGURE 3.5.2.1 - 3.8

QUALITY VS TIME FOR A 0.10 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.

- 1 CORE
- 2 LOWER PLENUM
- 3 BREAK

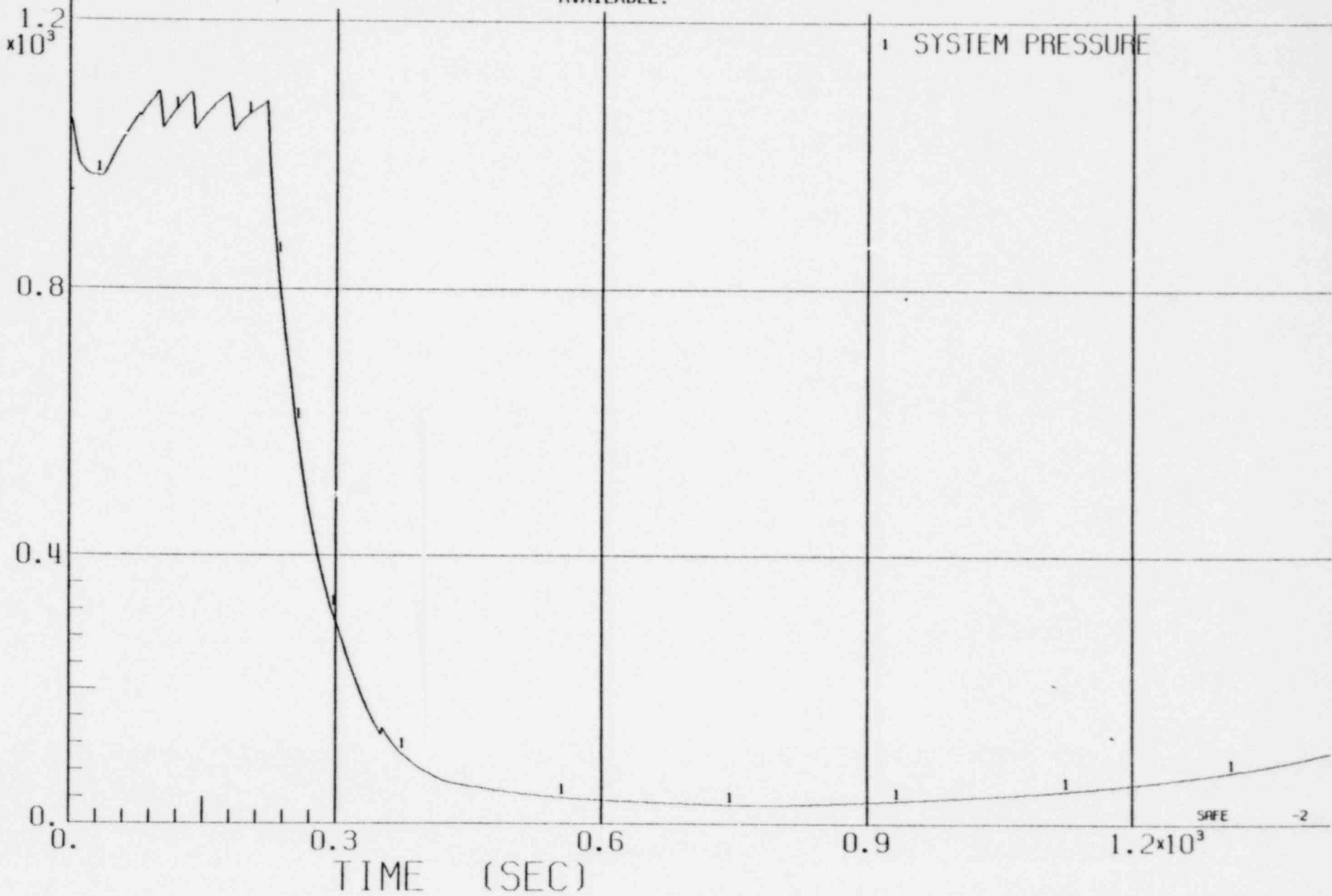


ATLANTIC
1549 028

BWR/4-218

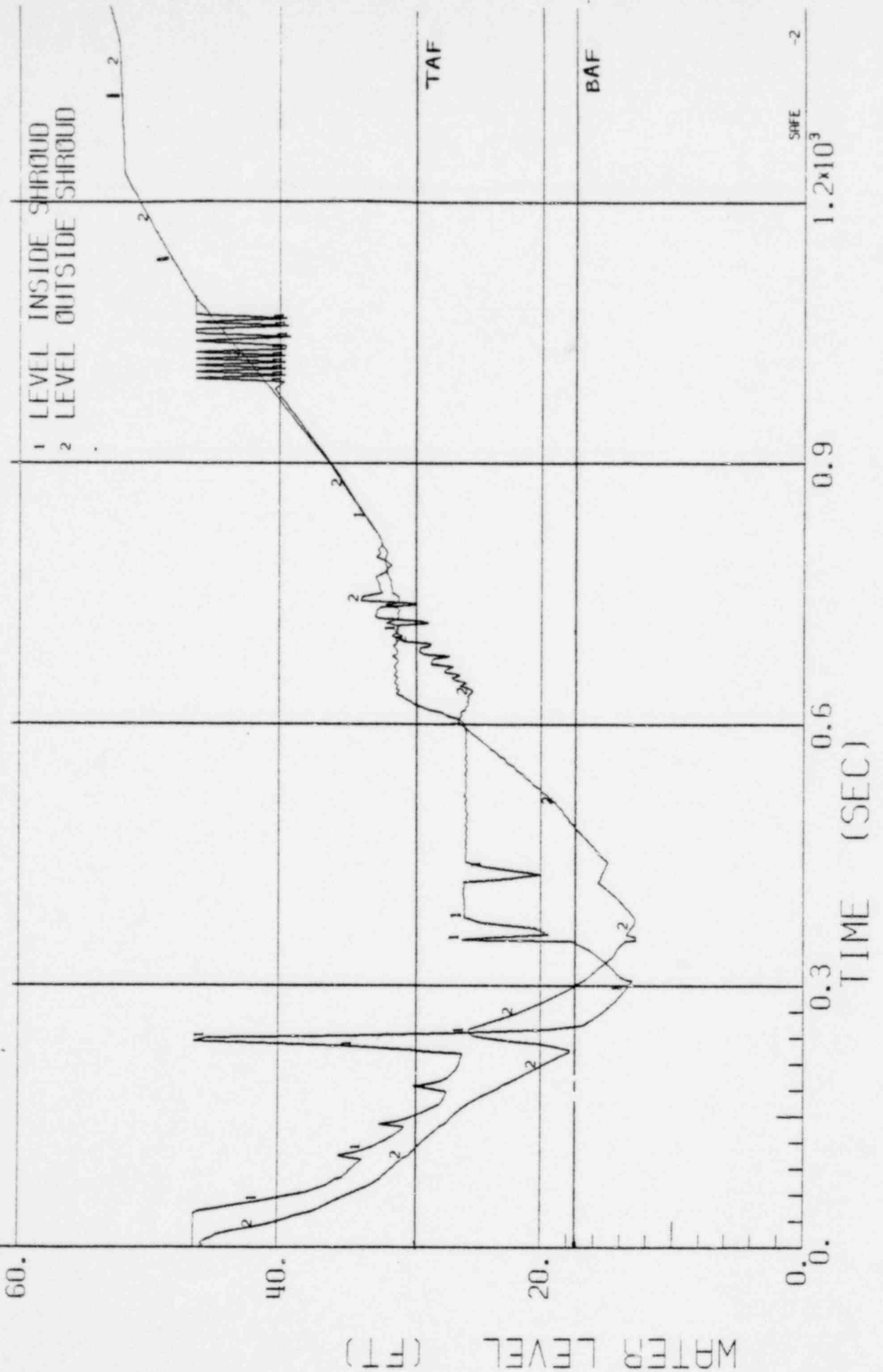
FIGURE 3.5.2.1 - 4.1 SYSTEM PRESSURE VS TIME FOR A 0.10 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.

670 645
PRESSURE (PSIA)
1549 029



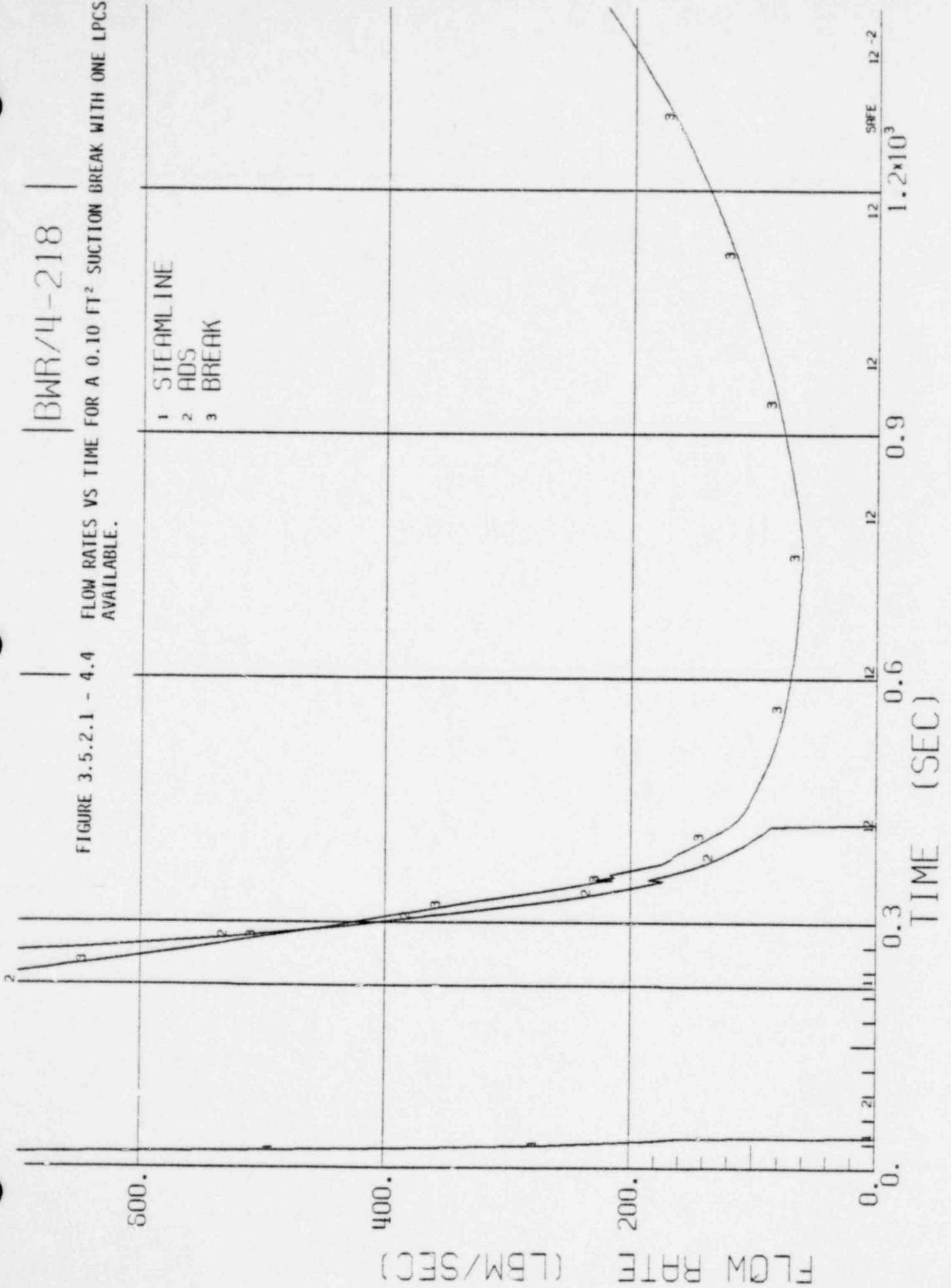
BWR/4-218

FIGURE 3.5.2.1 - 4.2 WATER LEVEL VS TIME FOR A 0.10 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



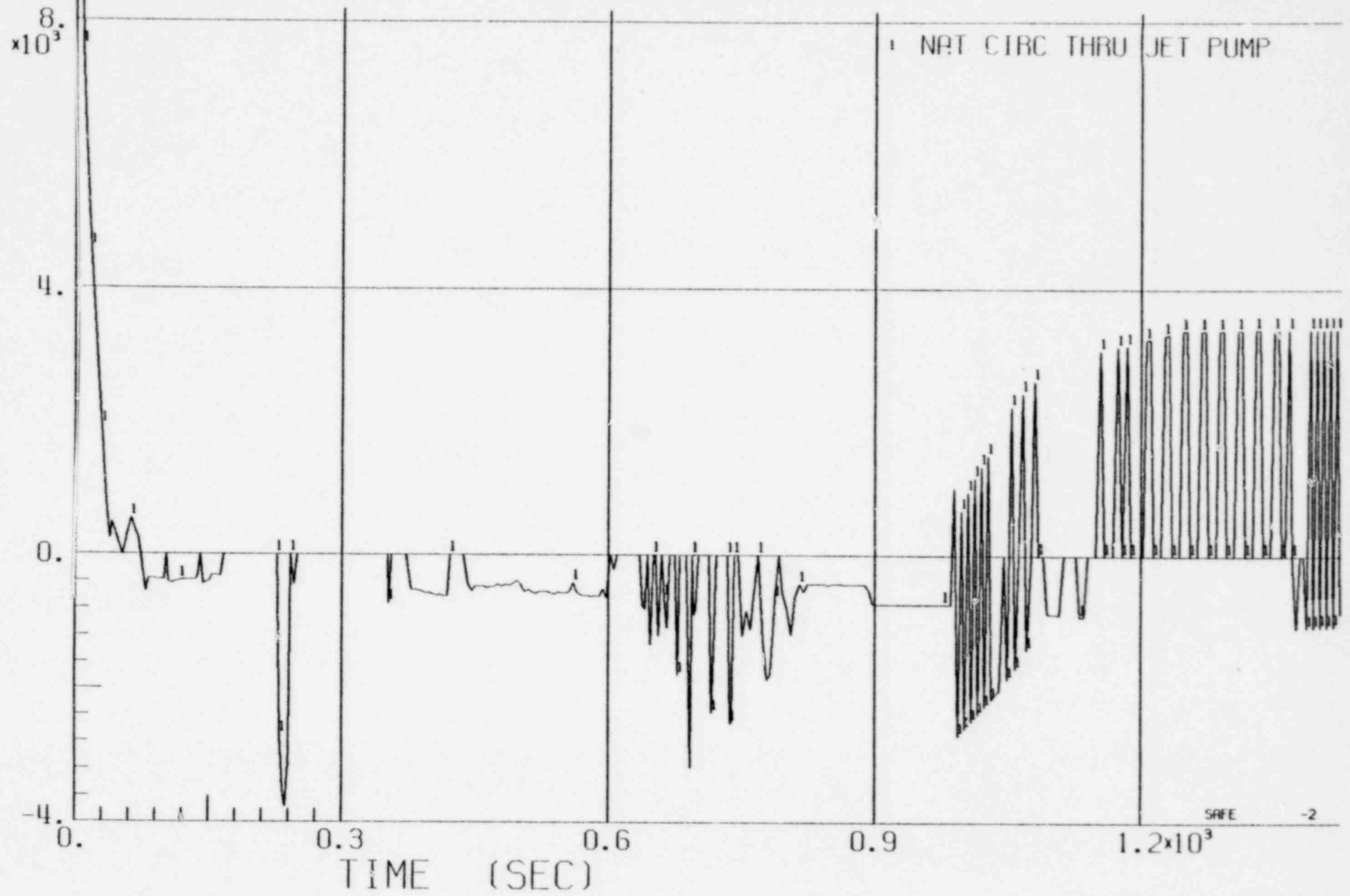
BWR/4-218

FIGURE 3.5.2.1 - 4.4 FLOW RATES VS TIME FOR A 0.10 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



BWR/4-218

FIGURE 3.5.2.1 - 4.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.10 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.

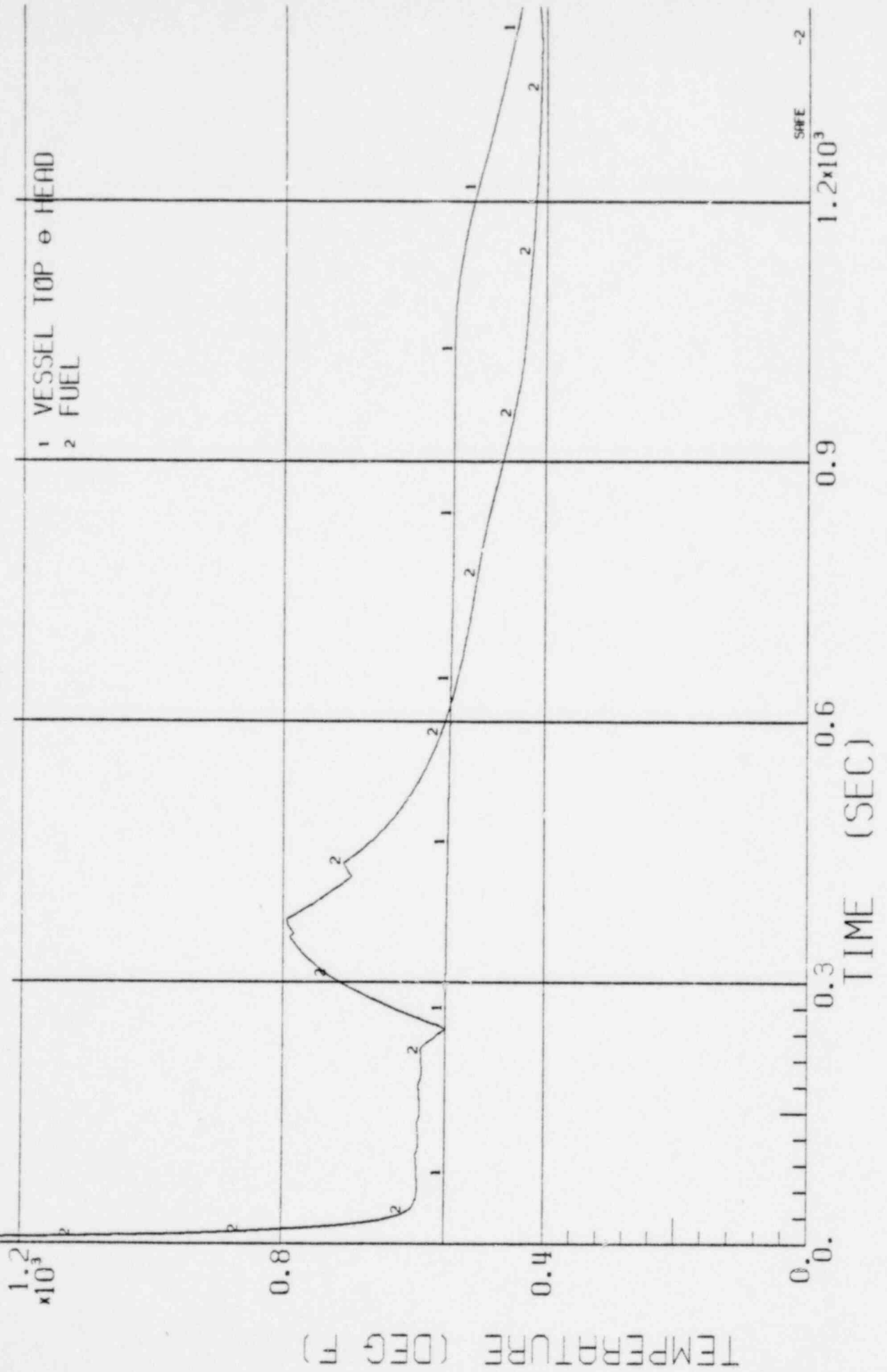


NAT CIRC THRU JET PUMP

1549 033
FLOW RATE (LBM/SEC)

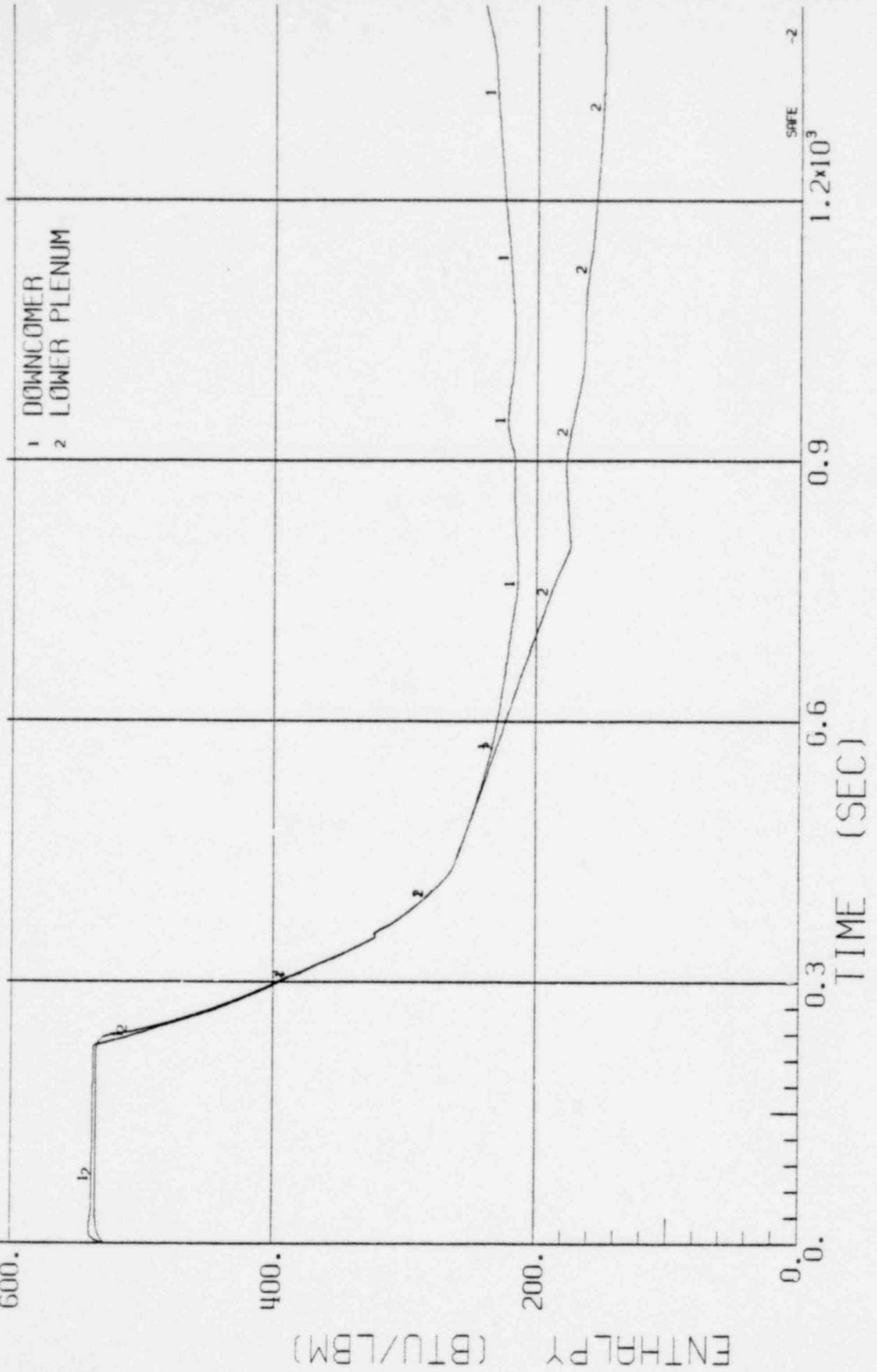
BWR/4-218

FIGURE 3.5.2.1 - 4.6 TEMPERATURE VS TIME FOR A 0.10 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



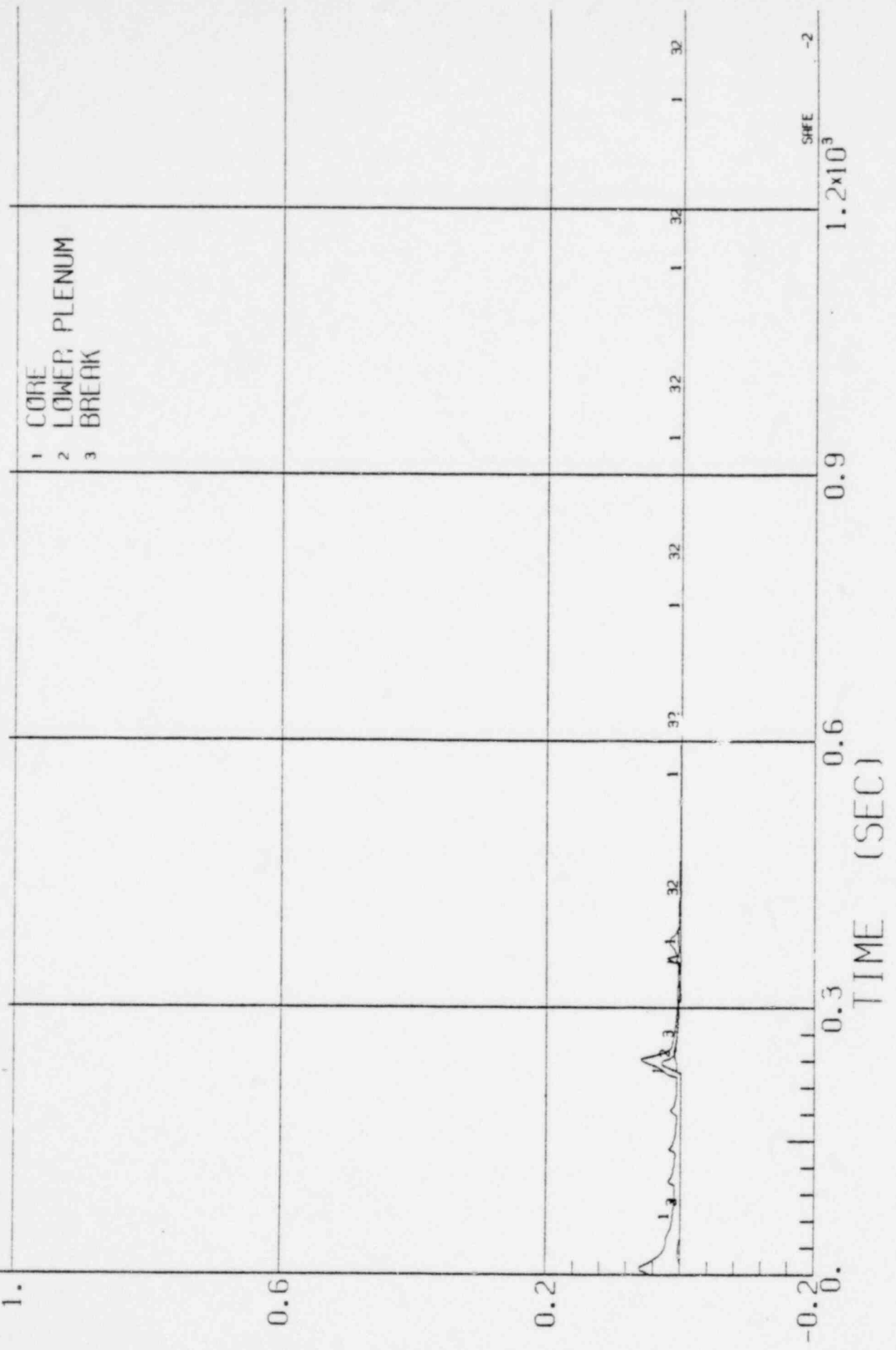
BWR/4-218

FIGURE 3.5.2.1 - 4.7 ENTHALPY VS TIME FOR A 0.10 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



BWR/4-218

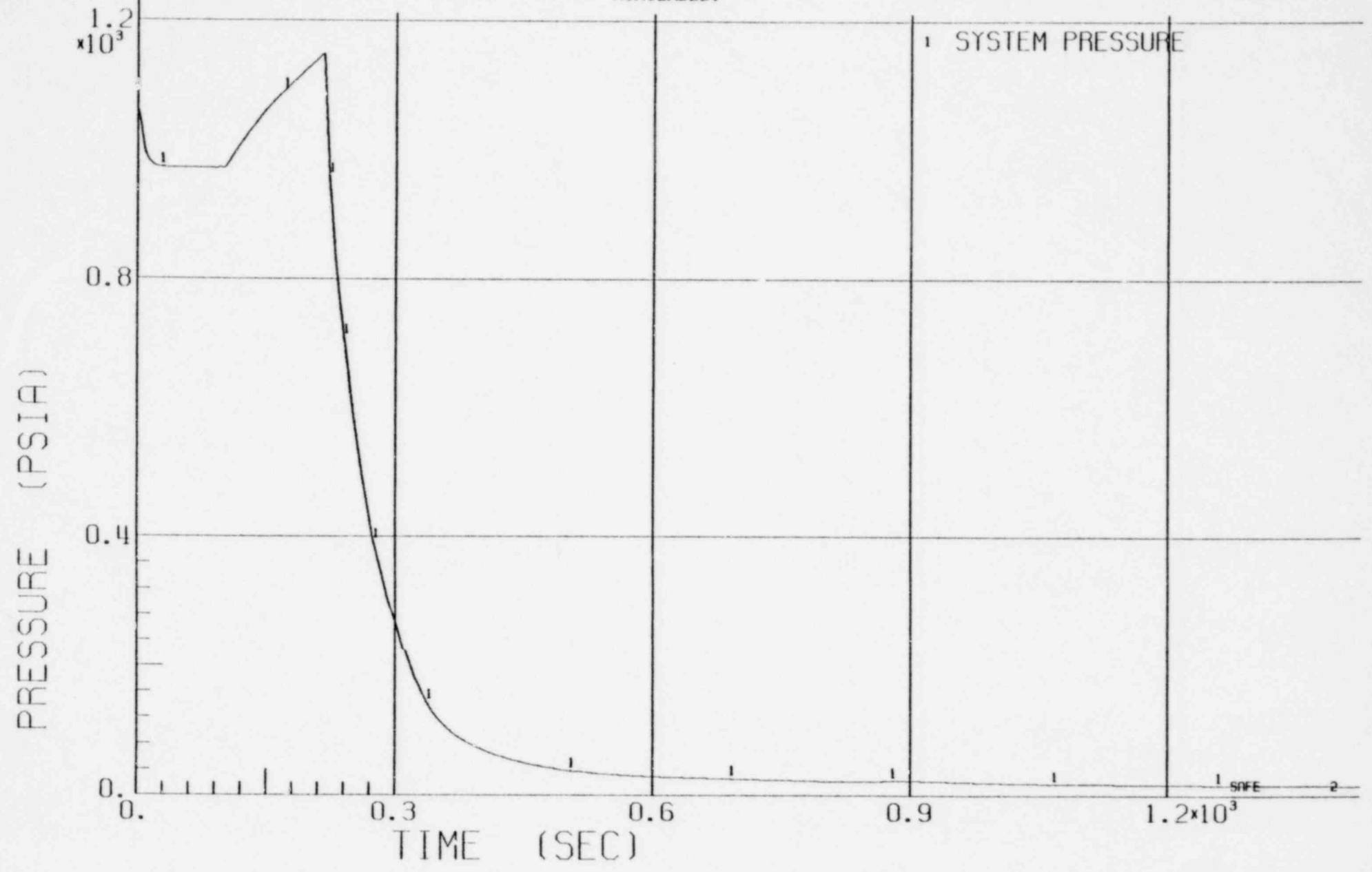
FIGURE 3.5.2.1 - 4.8 QUALITY VS TIME FOR A 0.10 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



1549 036
QUALITY

| BWR/6-218 |

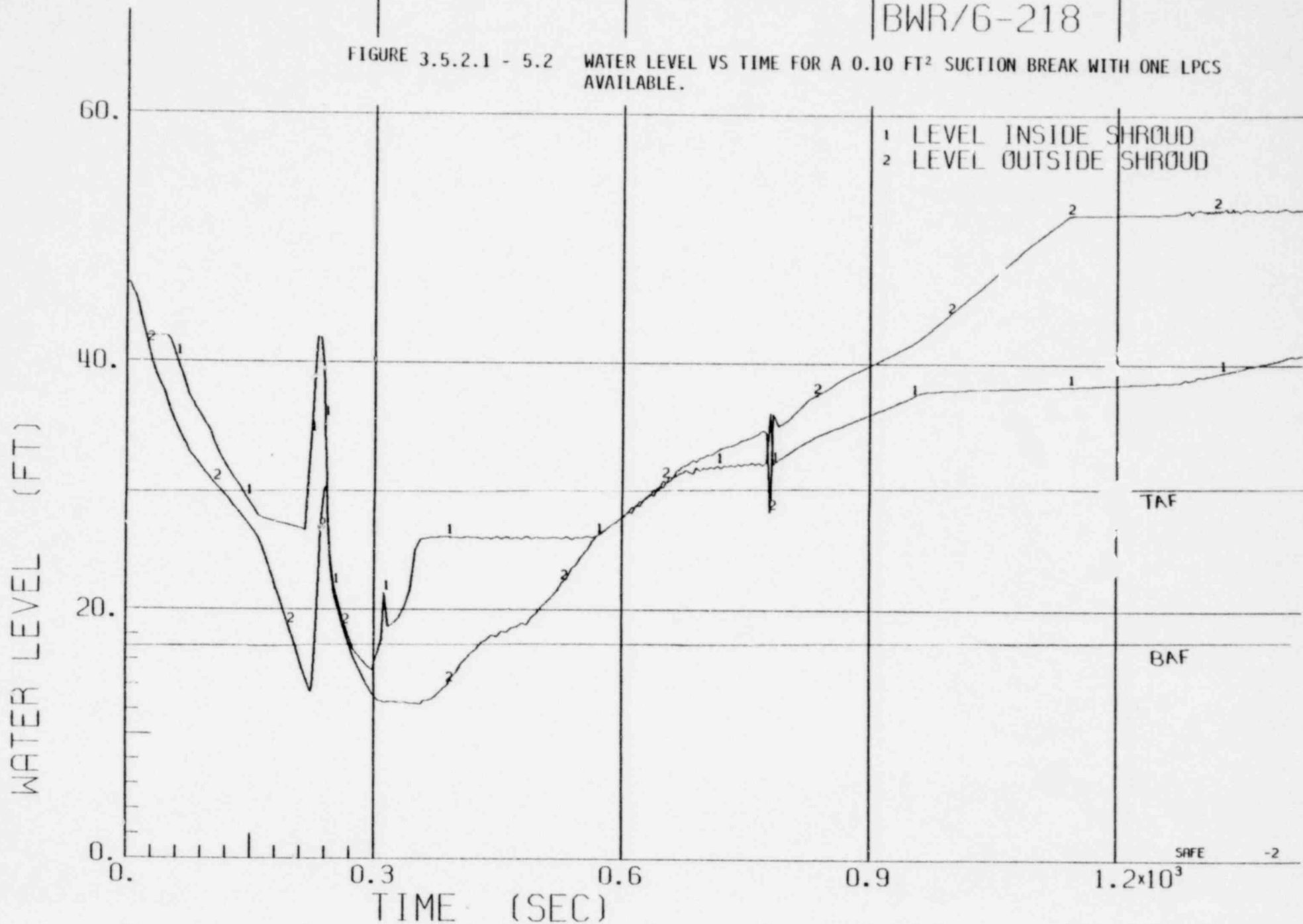
FIGURE 3.5.2.1 - 5.1 SYSTEM PRESSURE VS TIME FOR A 0.10 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



1549 037

BWR/6-218

FIGURE 3.5.2.1 - 5.2 WATER LEVEL VS TIME FOR A 0.10 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.

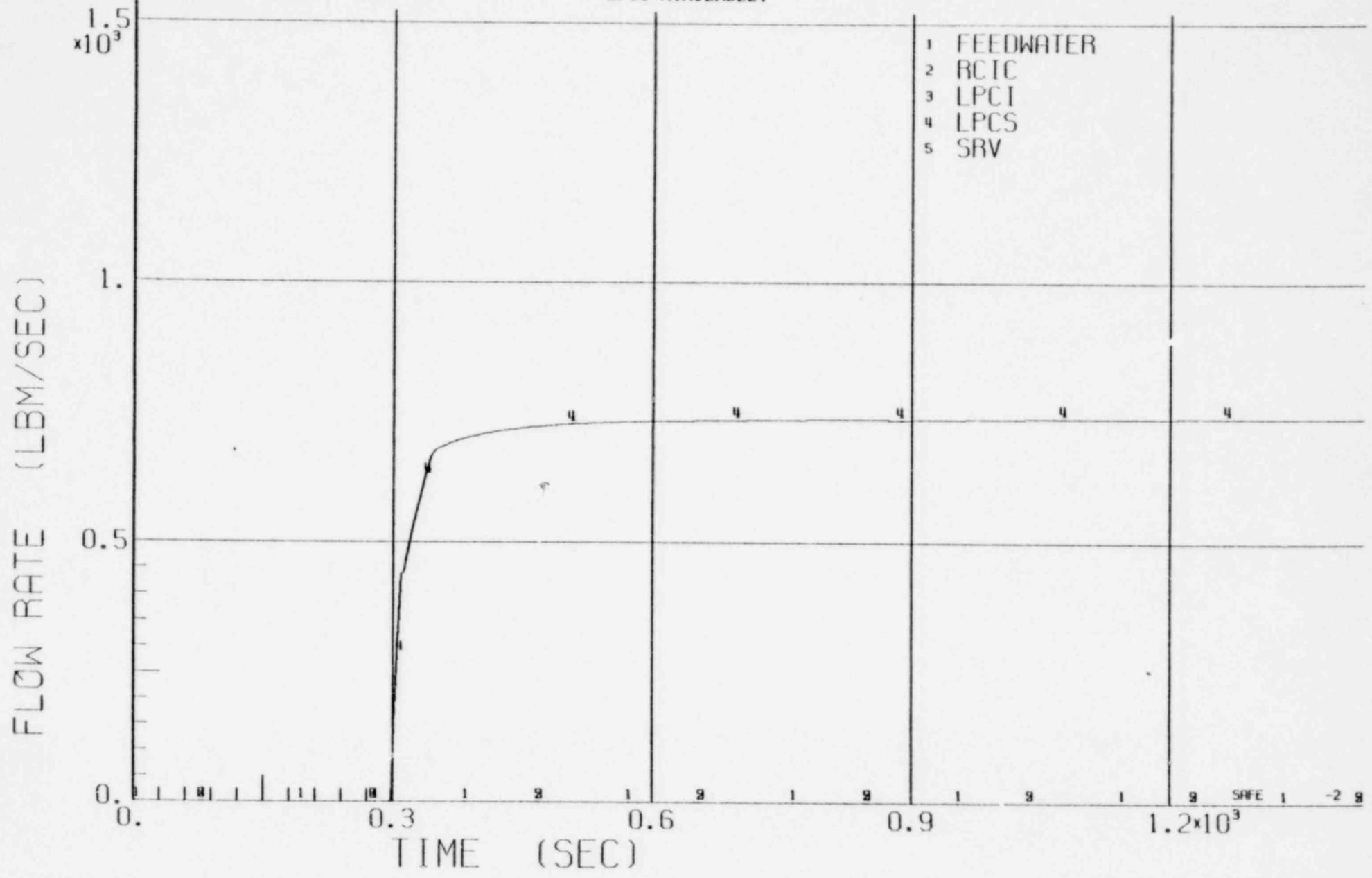


WATER LEVEL (FT)

1549 038

BWR/6-218

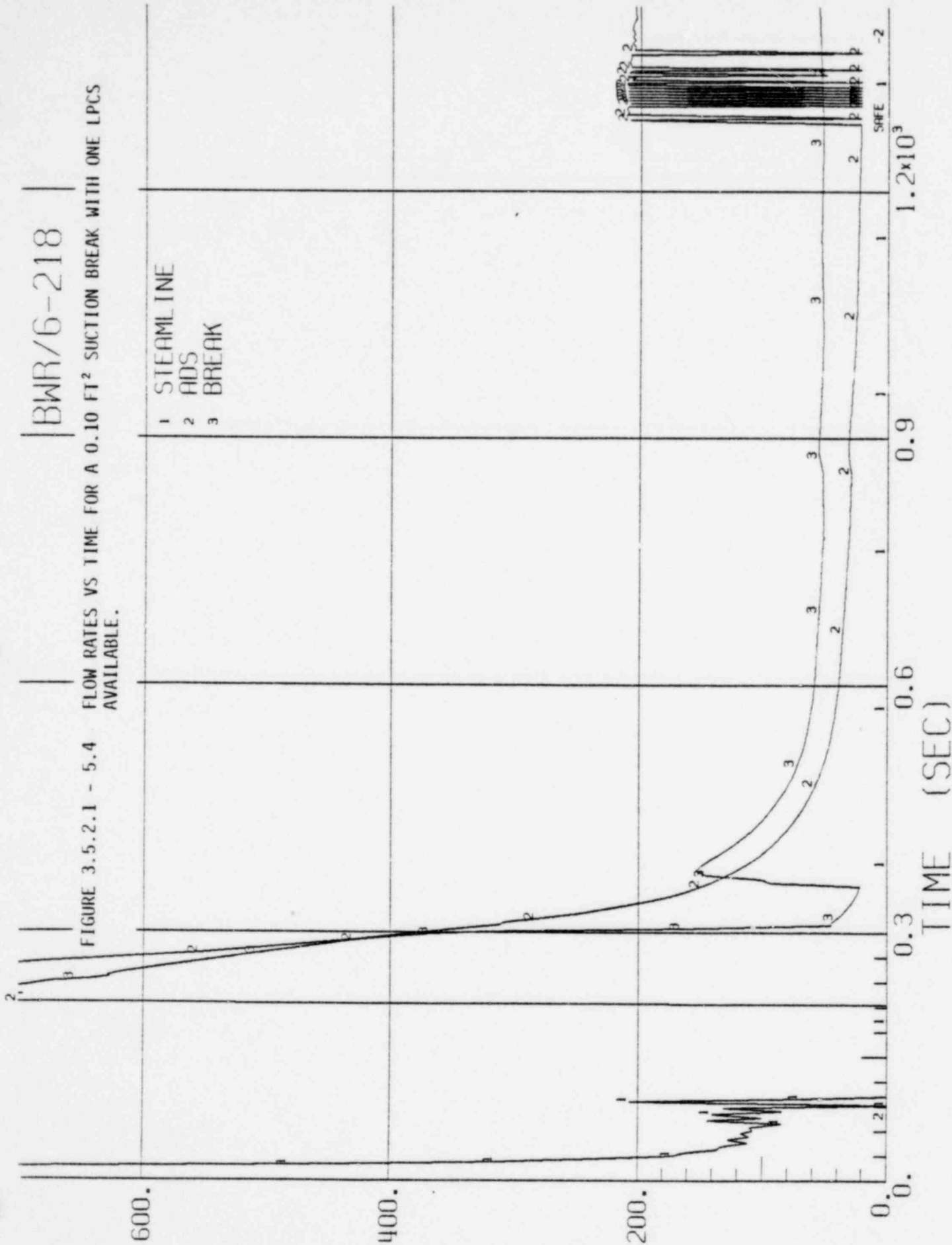
FIGURE 3.5.2.1 - 5.3 SYSTEM FLOW RATES VS TIME FOR A 0.10 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



1549 039

BWR/6-218

FIGURE 3.5.2.1 - 5.4 FLOW RATES VS TIME FOR A 0.10 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



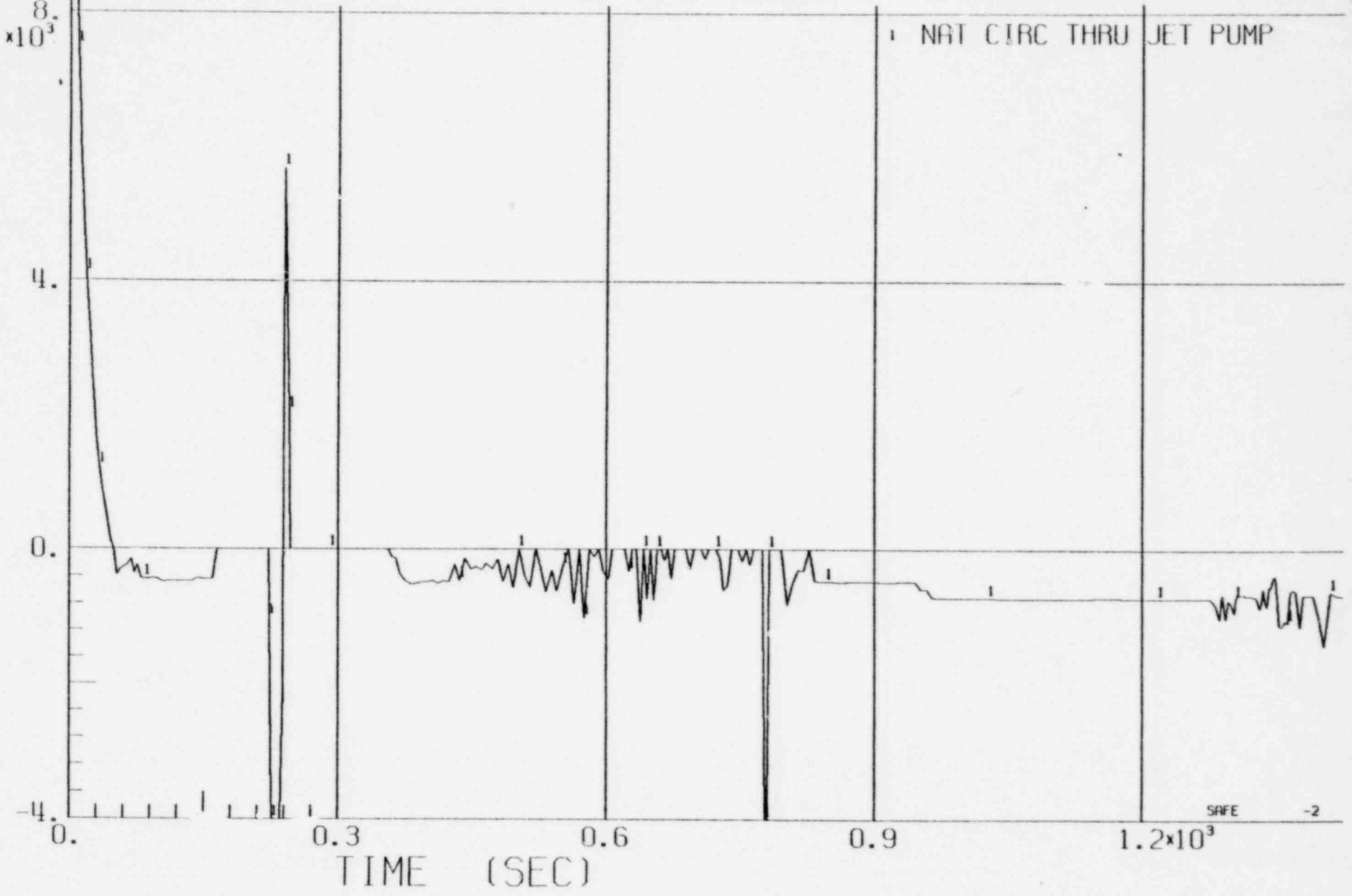
FLOW RATE (LBM/SEC)

1549 040

BWR/6-218

FIGURE 3.5.2.1 - 5.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.10 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.

FLOW RATE (LBM/SEC)

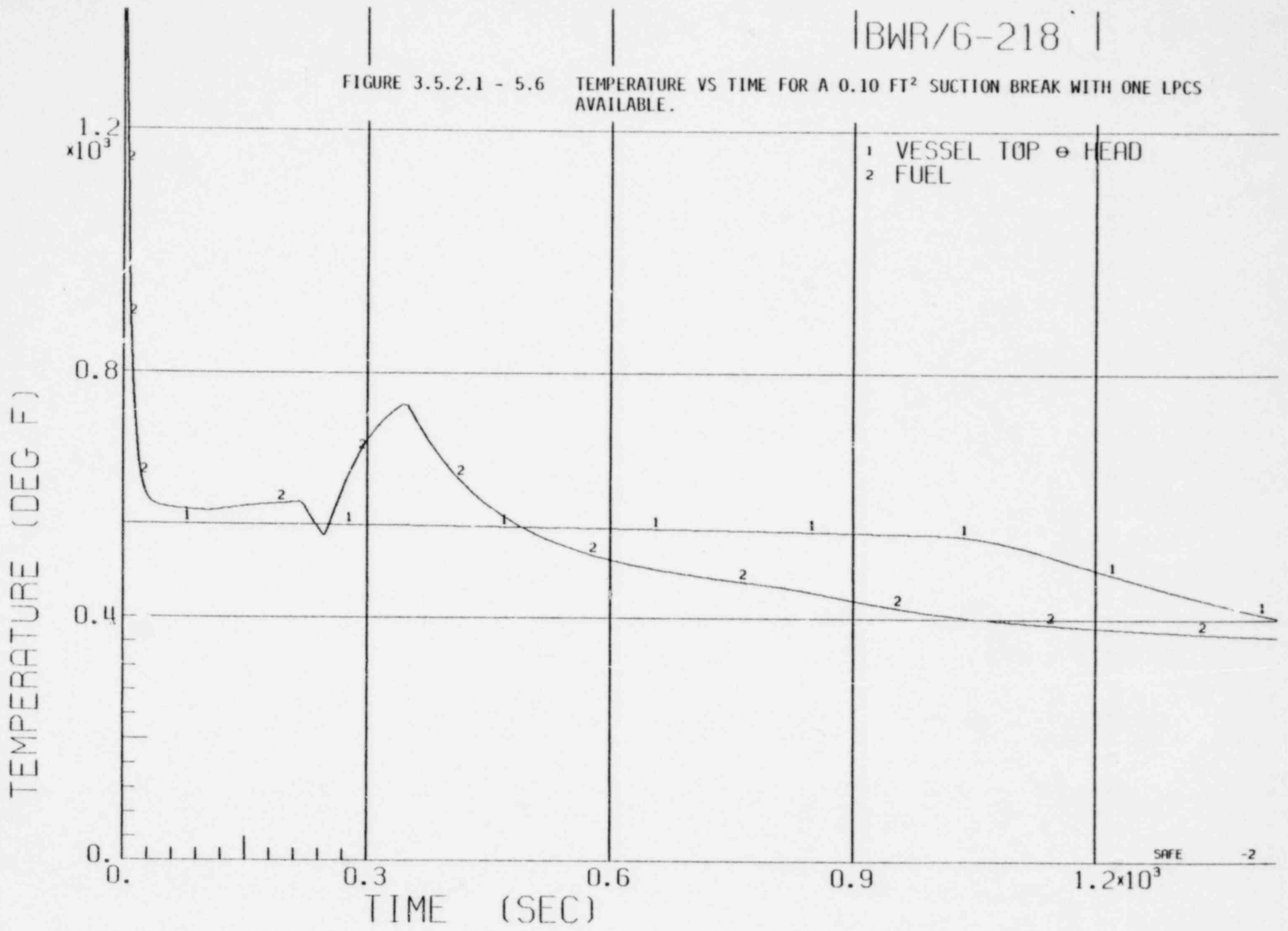


NAT CIRC THRU JET PUMP

1549 041

BWR/6-218

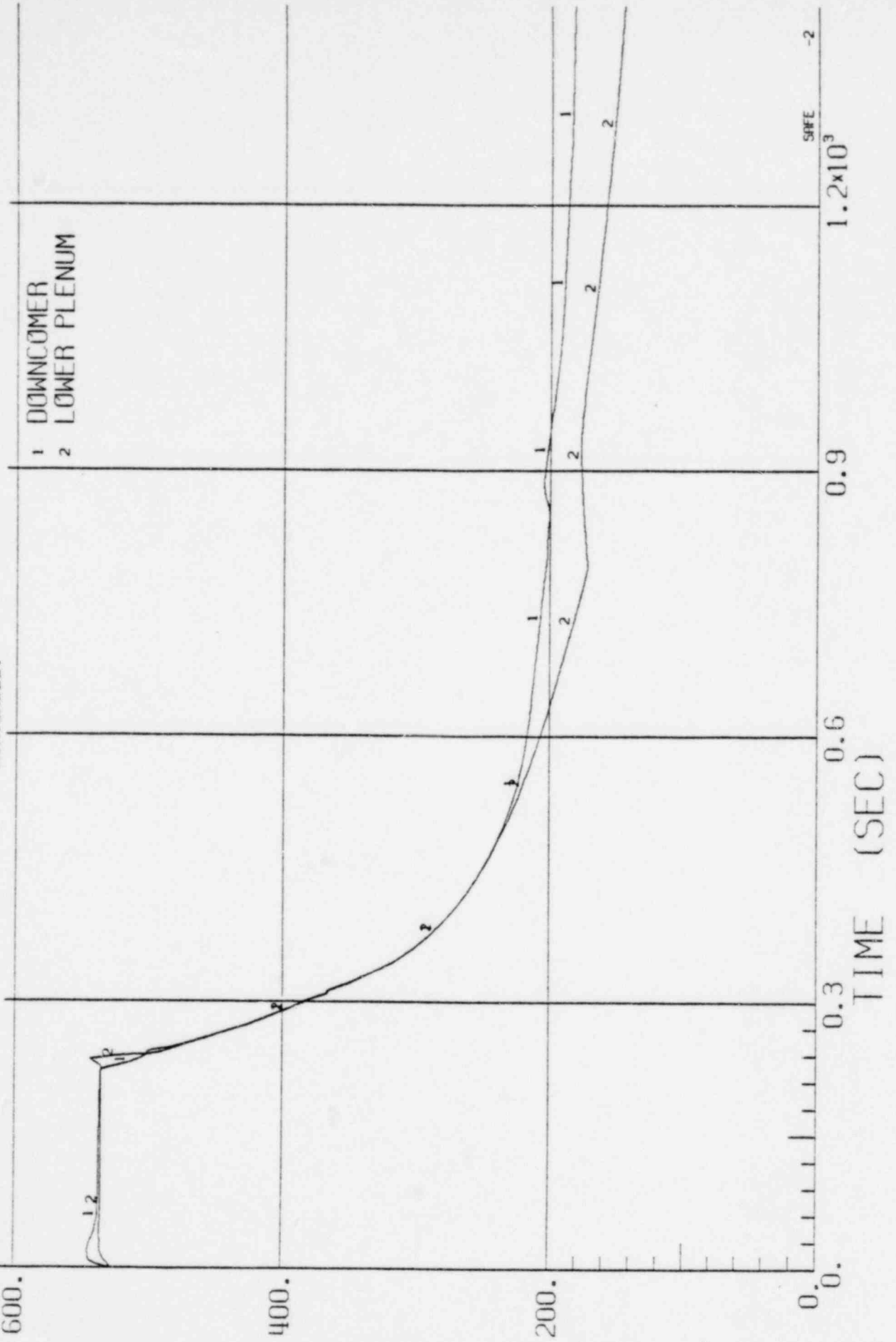
FIGURE 3.5.2.1 - 5.6 TEMPERATURE VS TIME FOR A 0.10 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



1549 042

BWR/6-218

FIGURE 3.5.2.1 - 5.7 ENTHALPY VS TIME FOR A 0.10 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



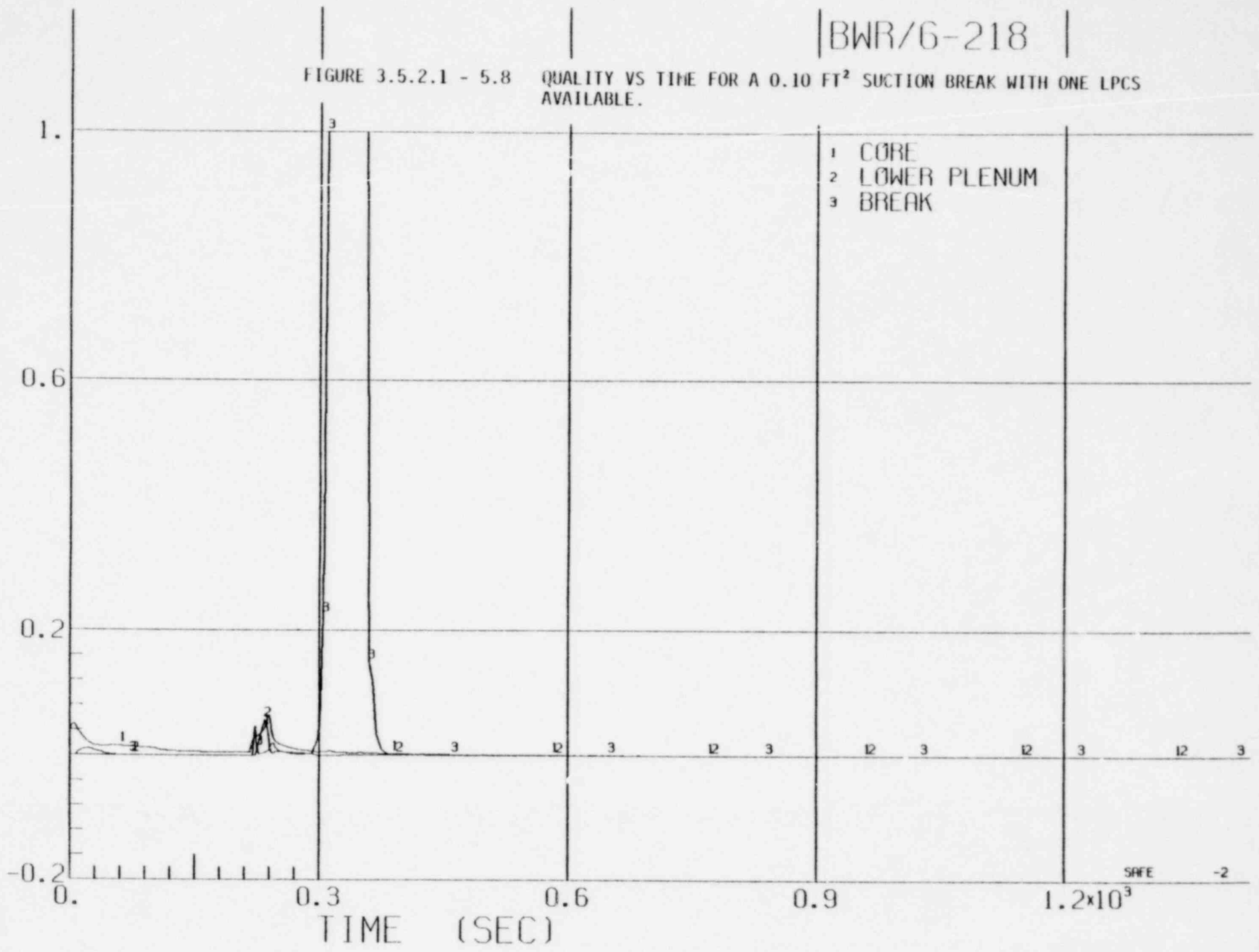
ENTHALPY (BTU/LBM)

1549 043

SAFE -2

BWR/6-218

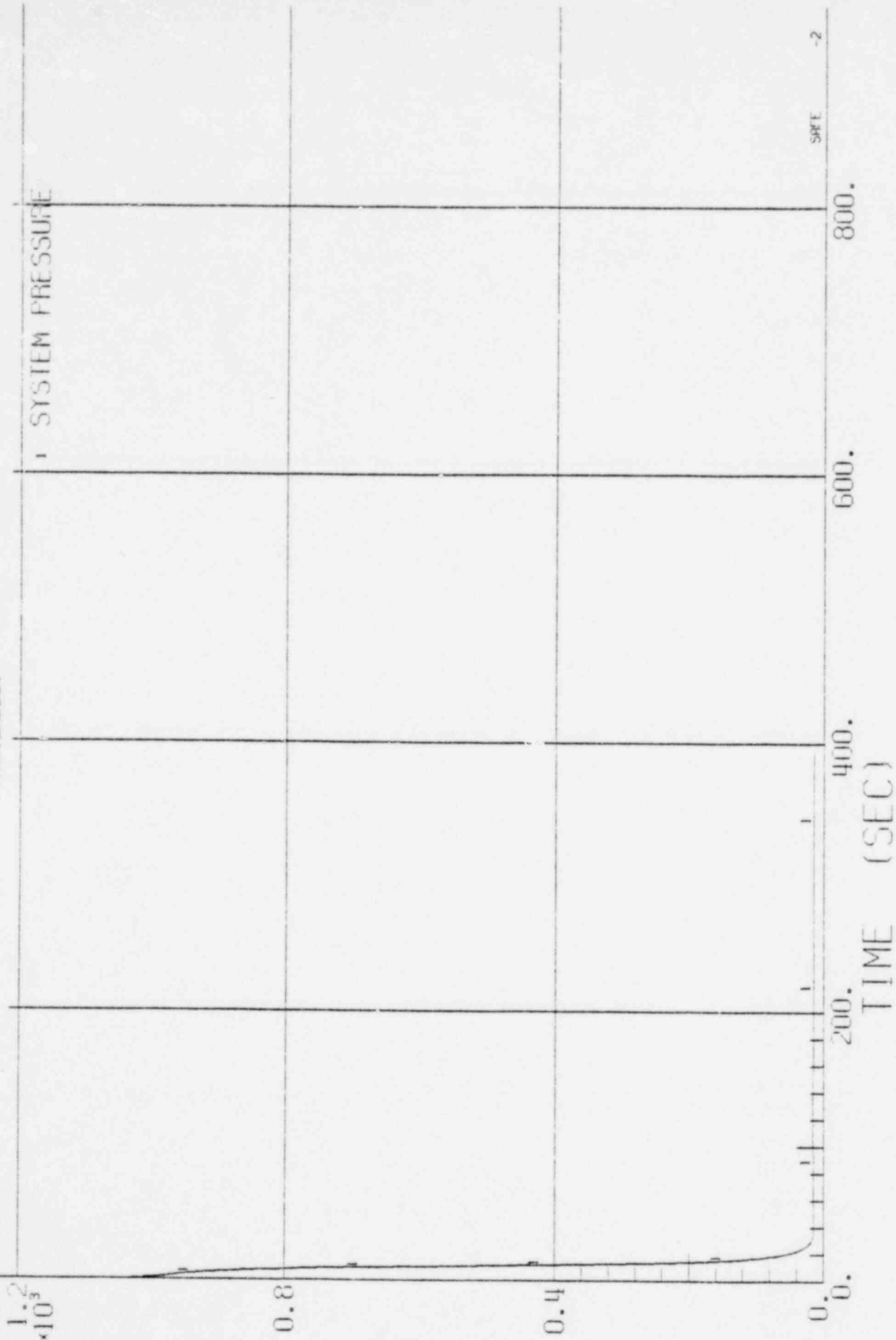
FIGURE 3.5.2.1 - 5.8 QUALITY VS TIME FOR A 0.10 FT² SUCTION BREAK WITH ONE LPCS AVAILABLE.



1549 044
QUALITY

BWR/2

FIGURE 3.5.2.1 - 6.1 SYSTEM PRESSURE VS TIME FOR A DBA SUCTION BREAK WITH ONE LPCS AVAILABLE.



PRESSURE (PSIA)

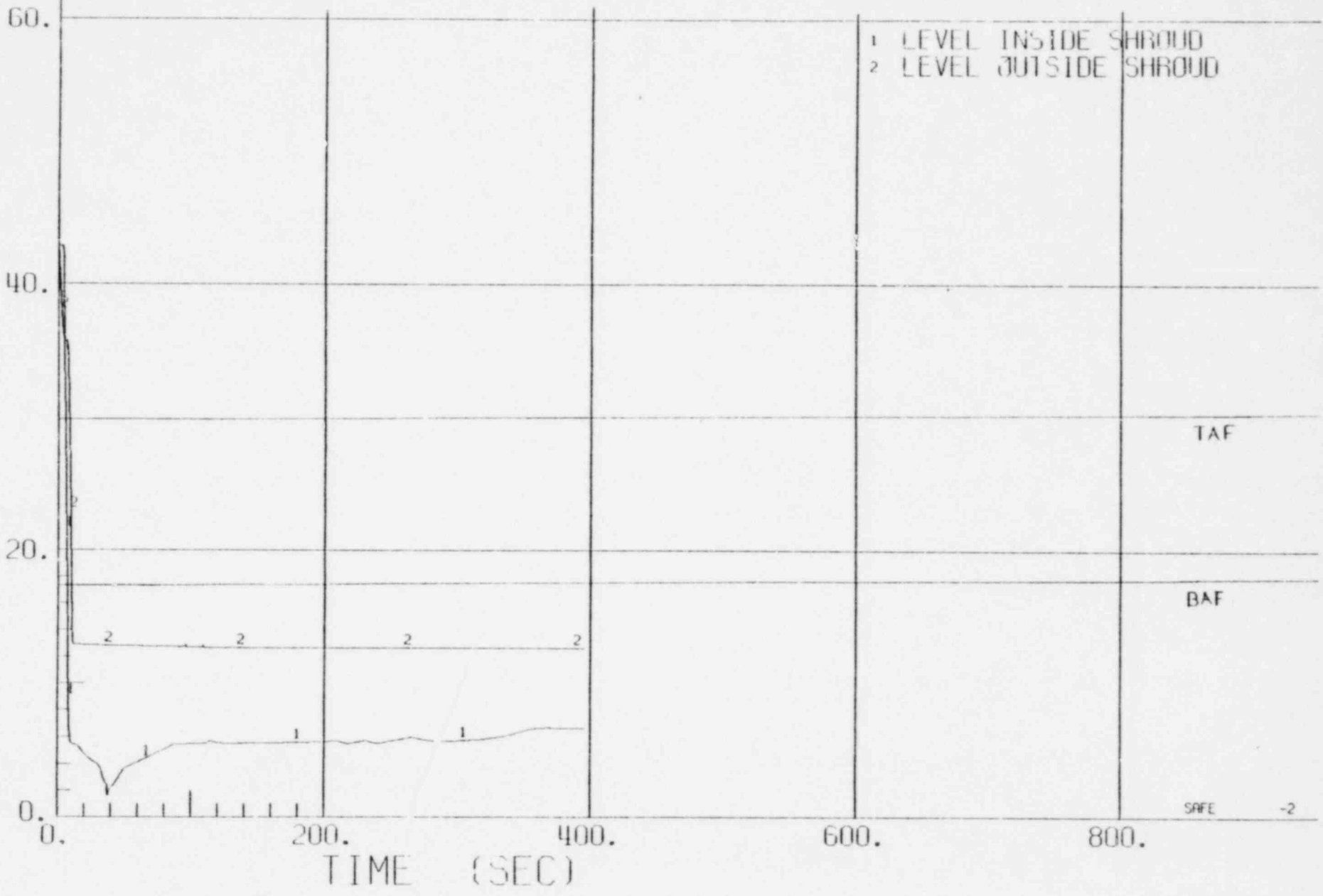
1549 045

SAFE -2

BWR/2

FIGURE 3.5.2.1 - 6.2 WATER LEVEL VS TIME FOR A DBA SUCTION BREAK WITH ONE LPCS AVAILABLE.

WATER LEVEL (FT)



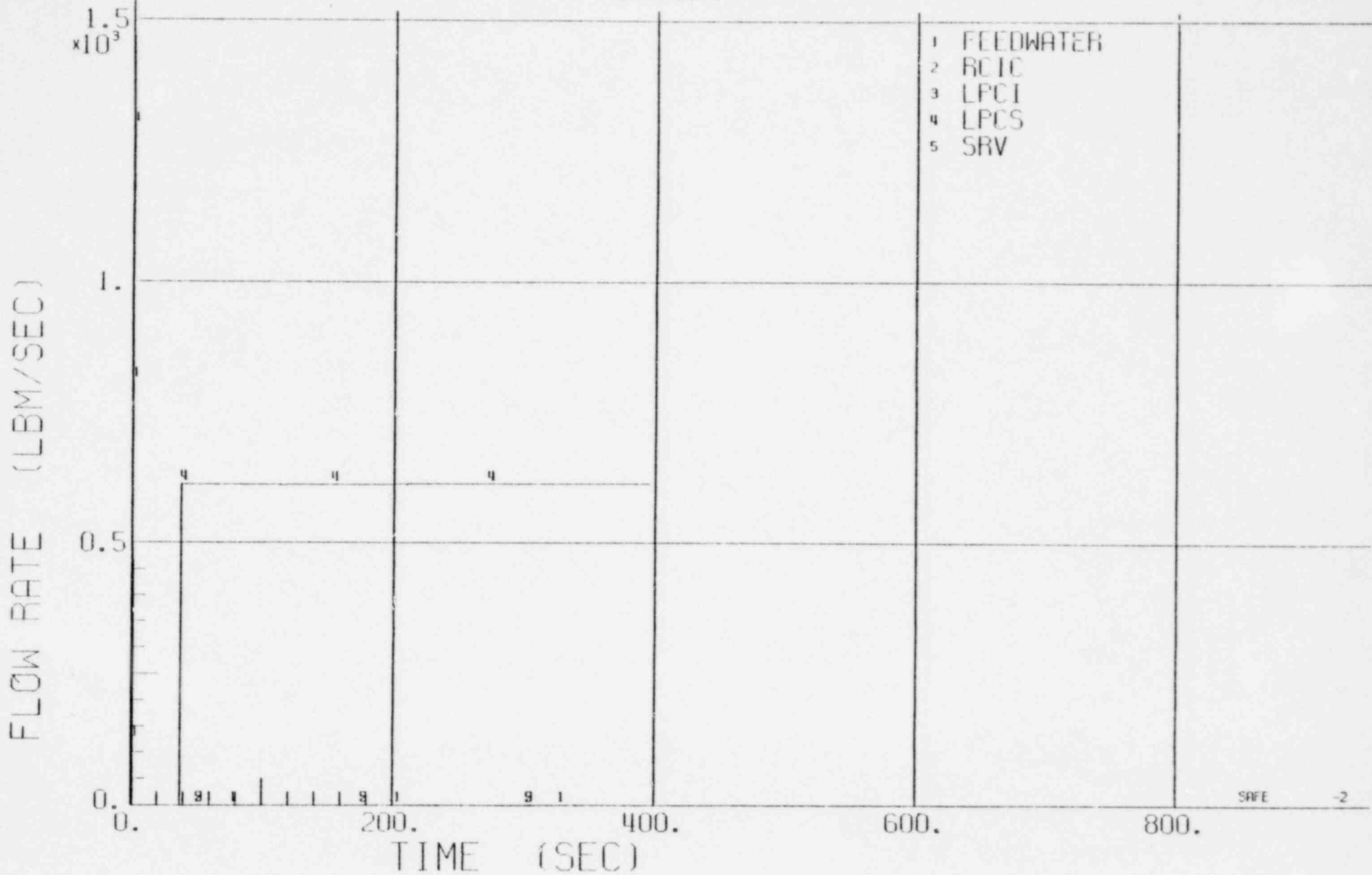
TAF

BAF

1549 046

BWR/2

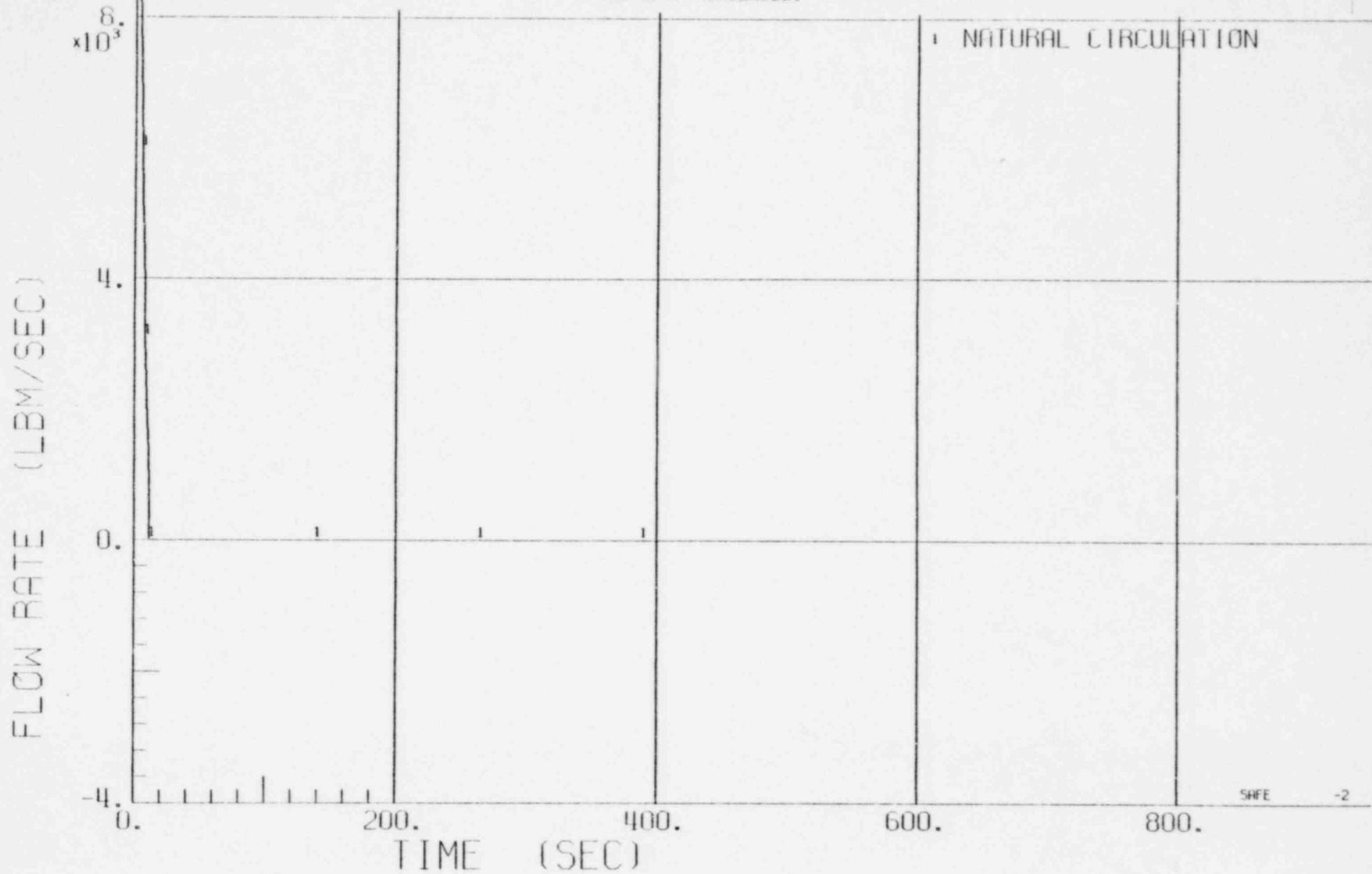
FIGURE 3.5.2.1 - 6.3 SYSTEM FLOW RATES VS TIME FOR A DBA SUCTION BREAK WITH ONE LPCS AVAILABLE.



1549 047

BWR/2

FIGURE 3.5.2.1 - 6.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A DBA SUCTION BREAK WITH ONE LPCS AVAILABLE.



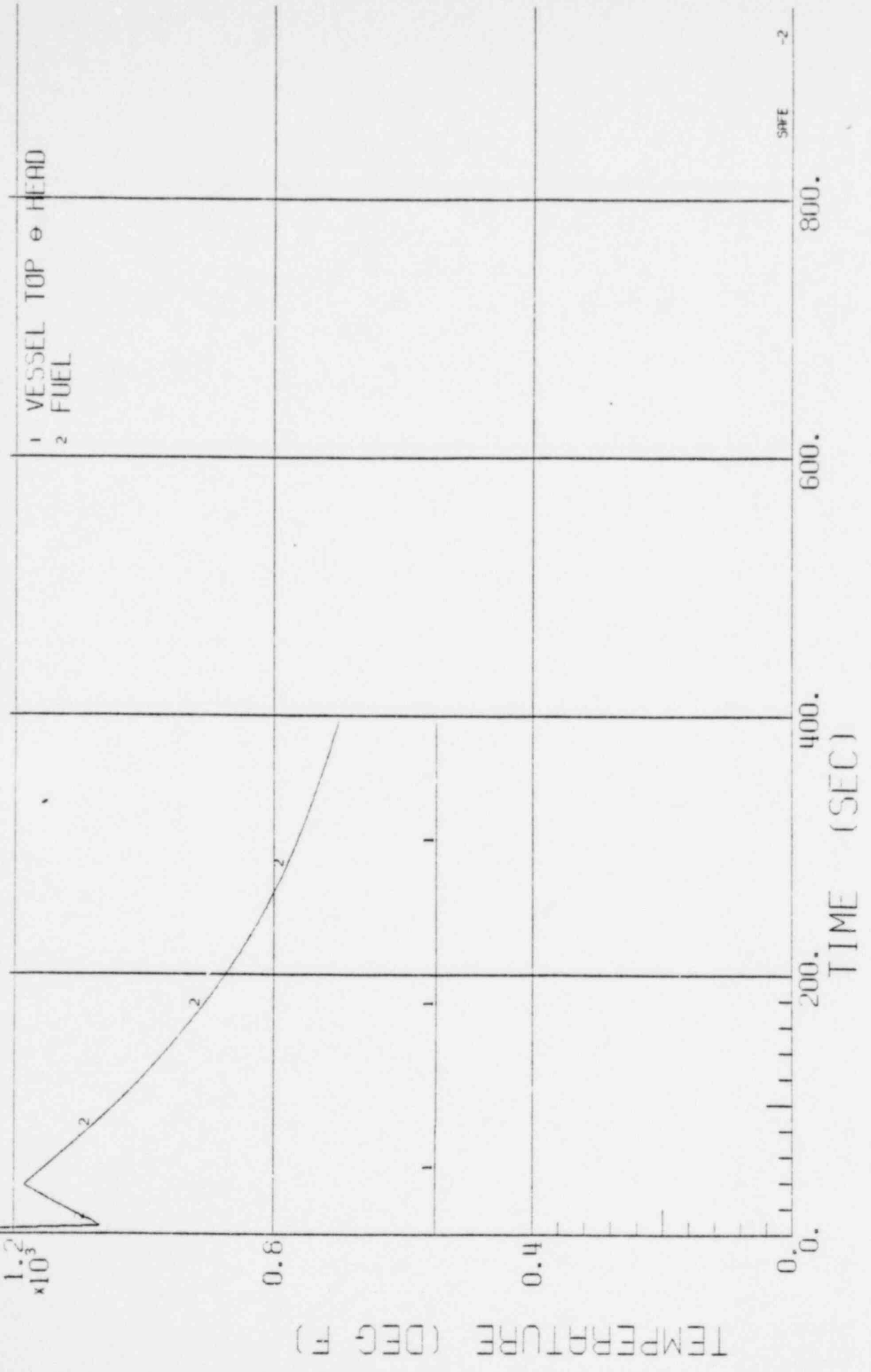
FLOW RATE (LBM/SEC)

ETAR M07A

1549 049

BWR/2

FIGURE 3.5.2.1 - 6.6 TEMPERATURE VS TIME FOR A DBA SUCTION BREAK WITH ONE LPCS AVAILABLE.



TEMPERATURE (DEG F)

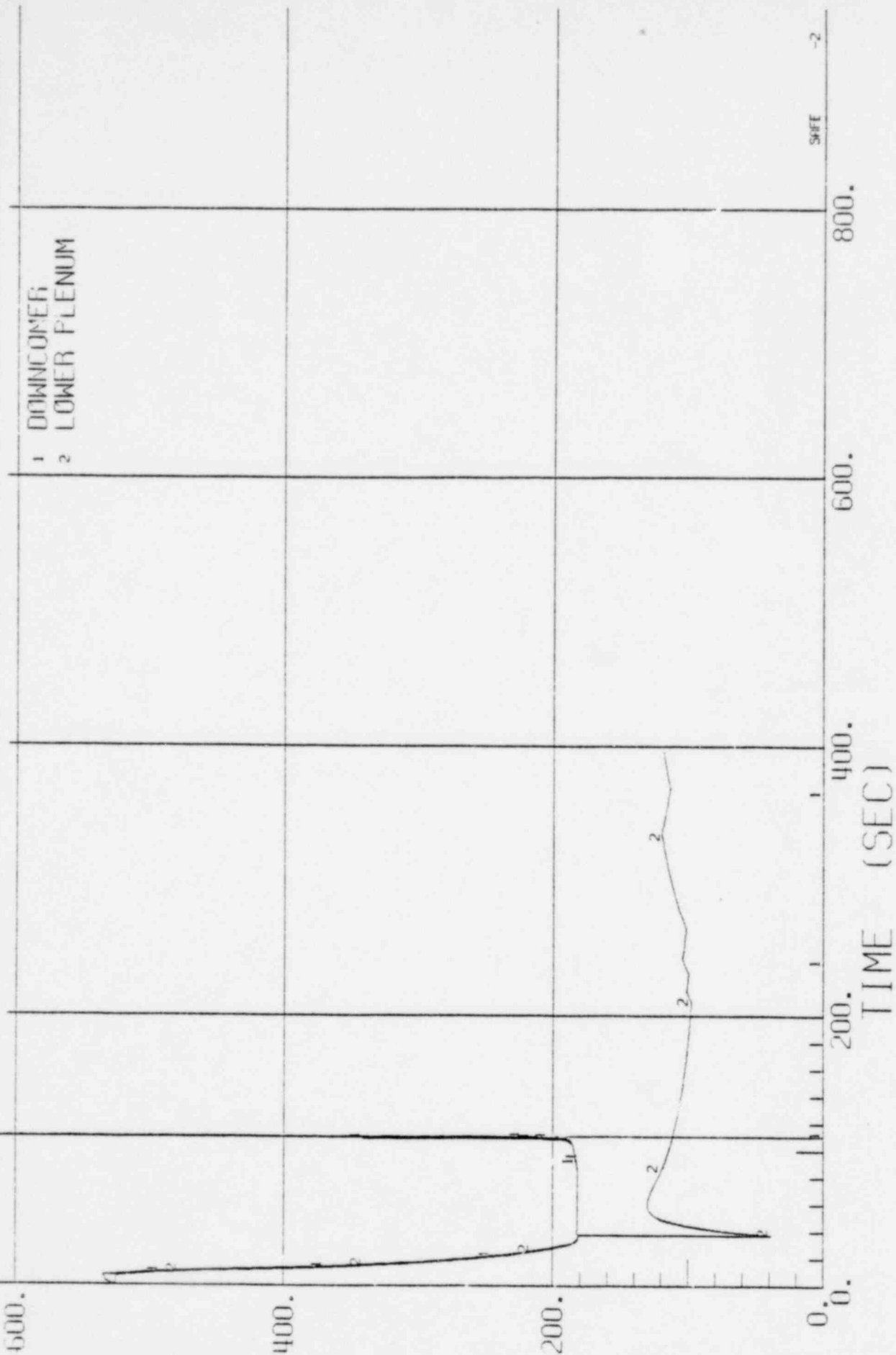
TIME (SEC)

1549 050

SAFE -2

BWR/2

FIGURE 3.5.2.1 - 6.7 ENTHALPY VS TIME FOR A DBA SUCTION BREAK WITH ONE LPCS AVAILABLE.



ENTHALPY (BTU/LBM)

150 6451

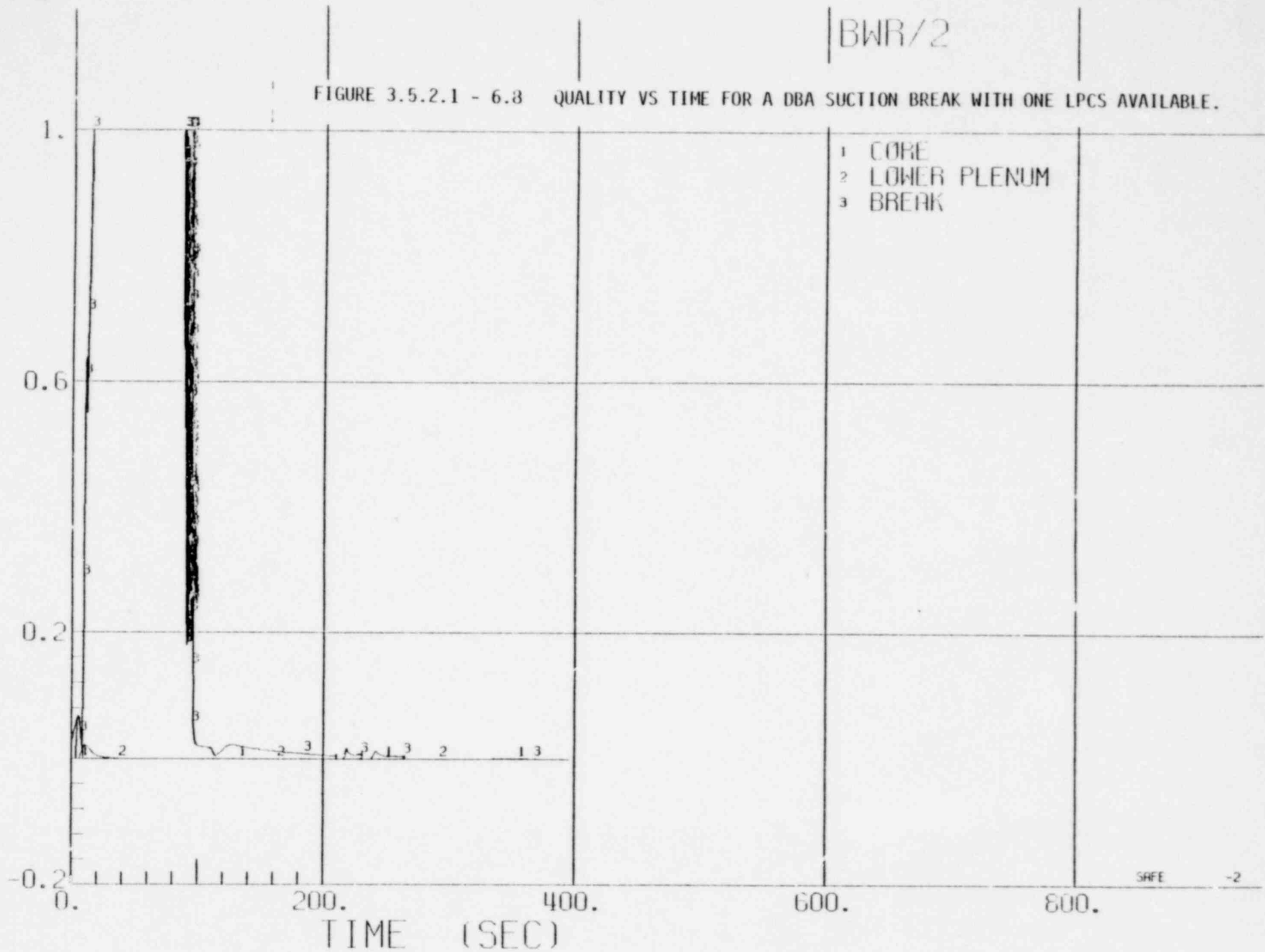
TIME (SEC)

SFF -2

BWR/2

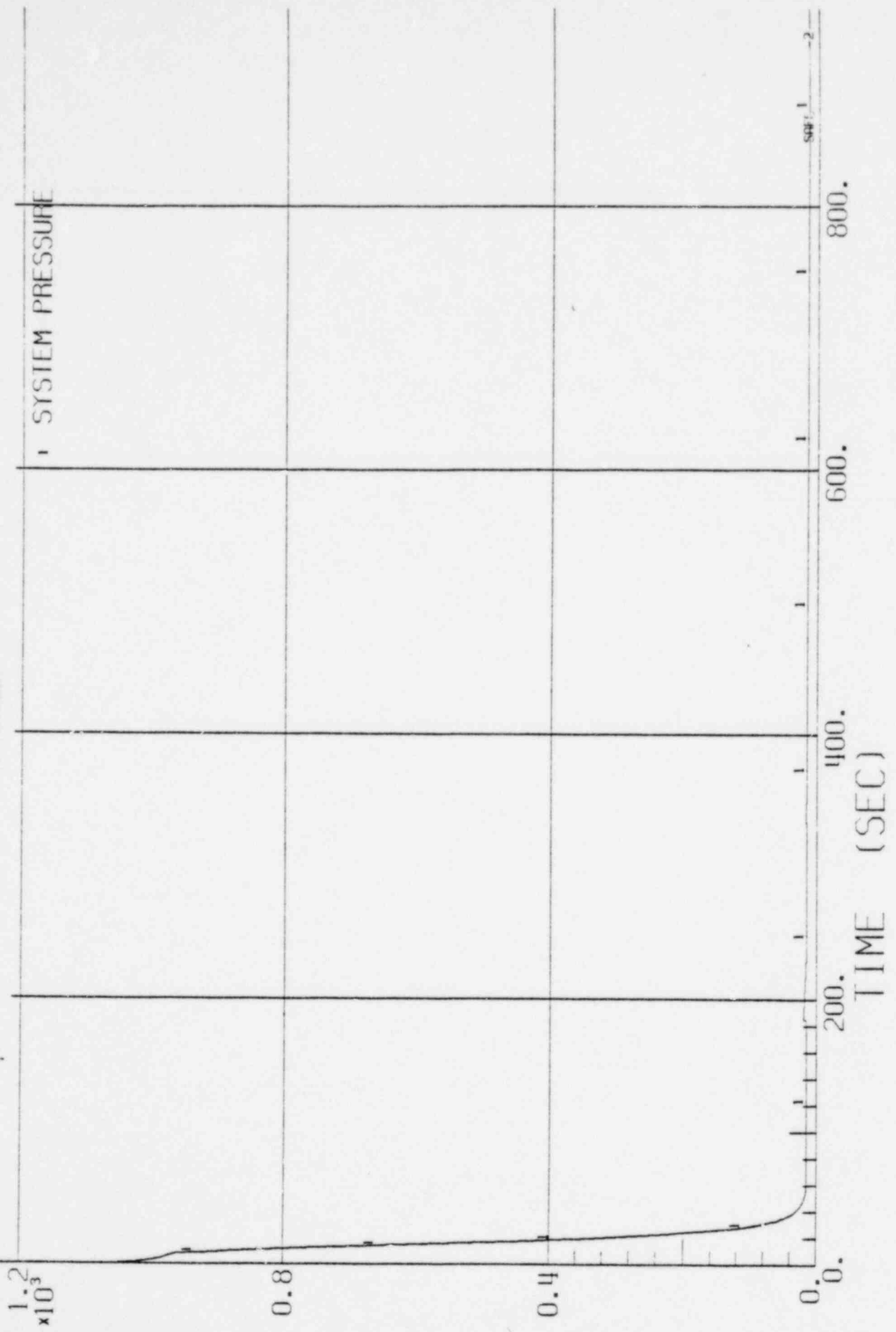
FIGURE 3.5.2.1 - 6.8 QUALITY VS TIME FOR A DBA SUCTION BREAK WITH ONE LPCS AVAILABLE.

1549 052



BWR/4-218

FIGURE 3.5.2.1 - 7.1 SYSTEM PRESSURE VS TIME FOR A DBA SUCTION BREAK WITH ONE LPCS AVAILABLE.

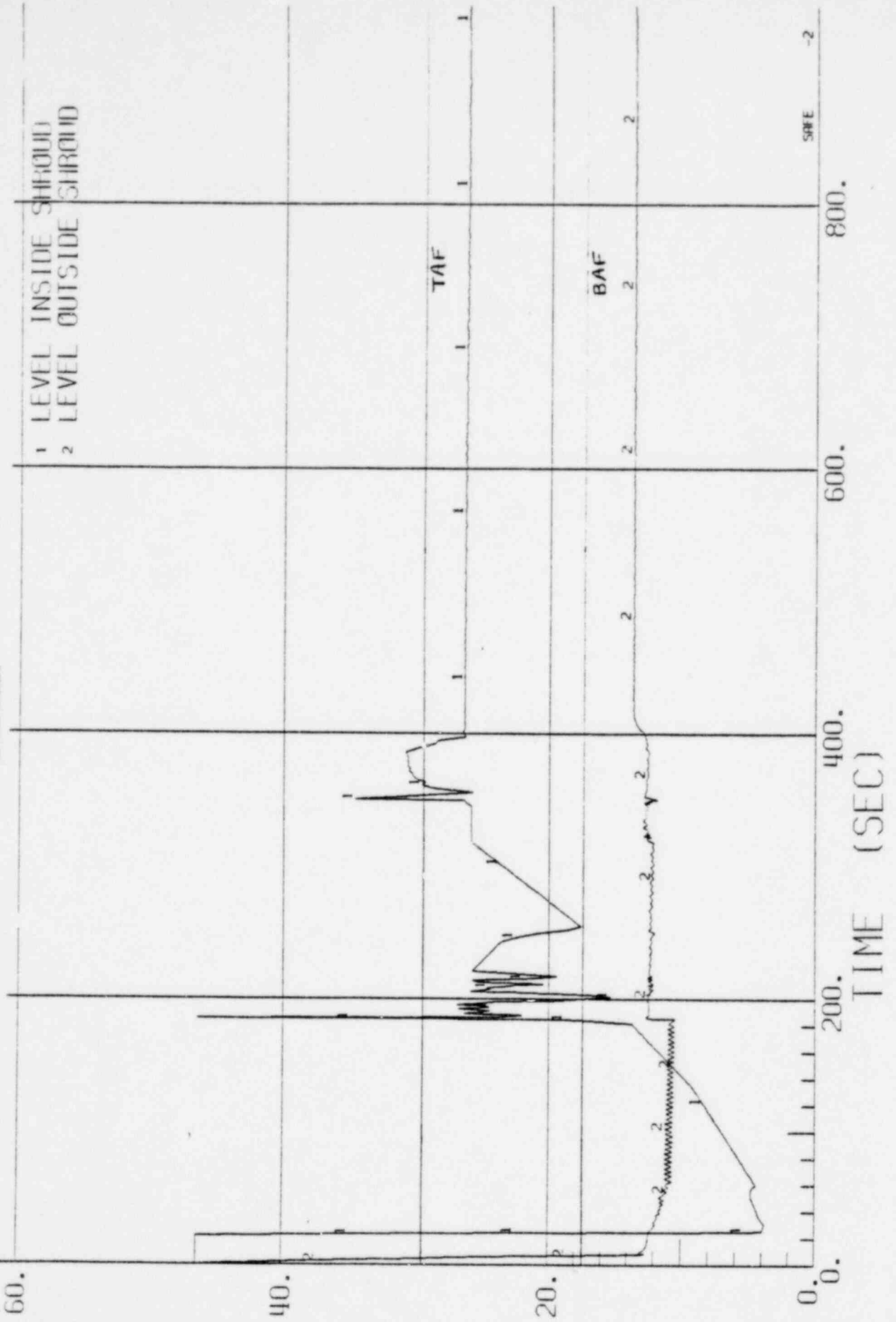


PRESSURE (PSIA)

1549 053

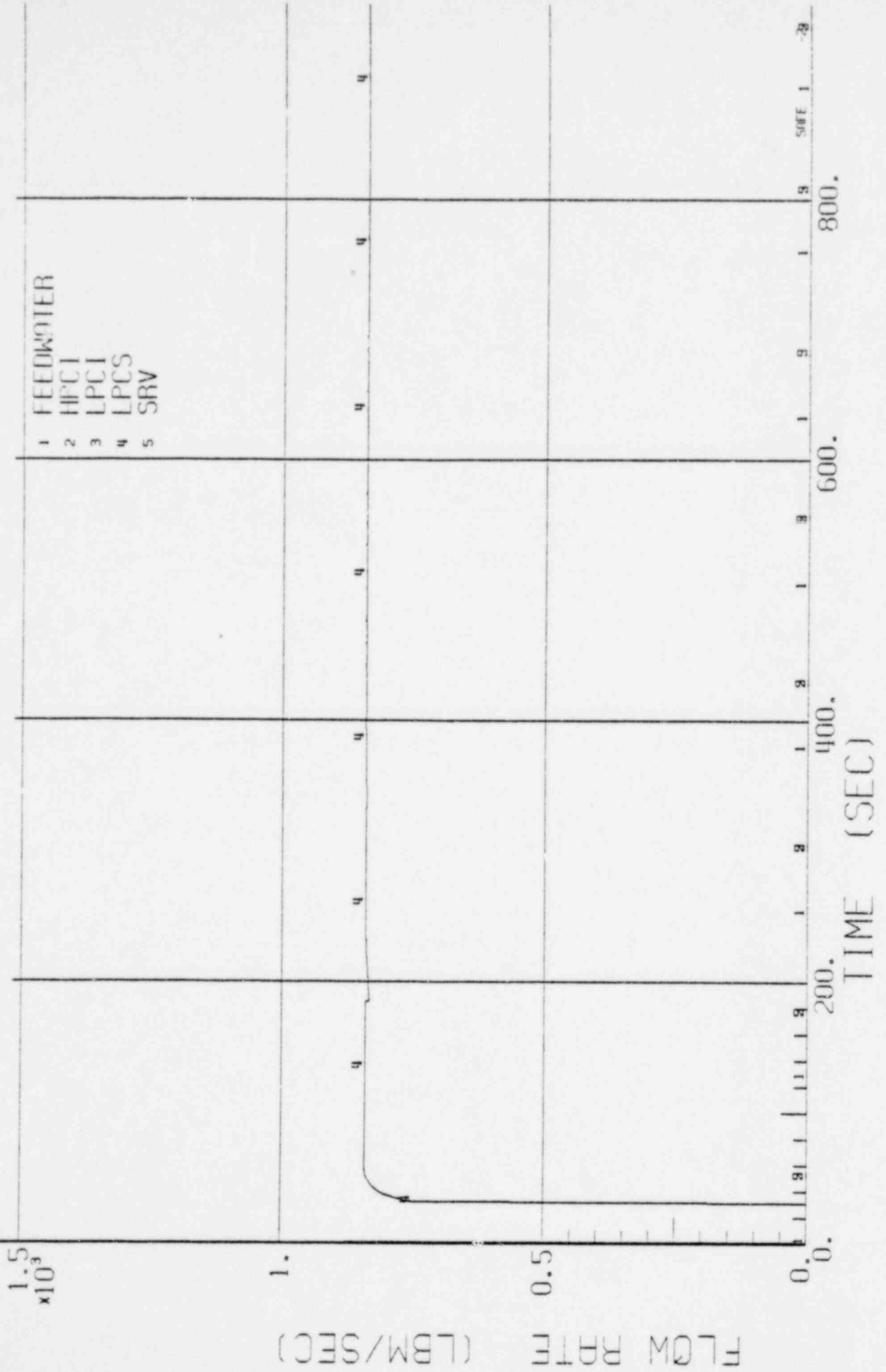
BWR/4-218

FIGURE 3.5.2.1 - 7.2 WATER LEVEL VS TIME FOR A DBA SUCTION BREAK WITH ONE LPCS AVAILABLE.



BWR/4-218

FIGURE 3.5.2.1 - 7.3 SYSTEM FLOW RATES VS TIME FOR A DBA SUCTION BREAK WITH ONE LPCS AVAILABLE.



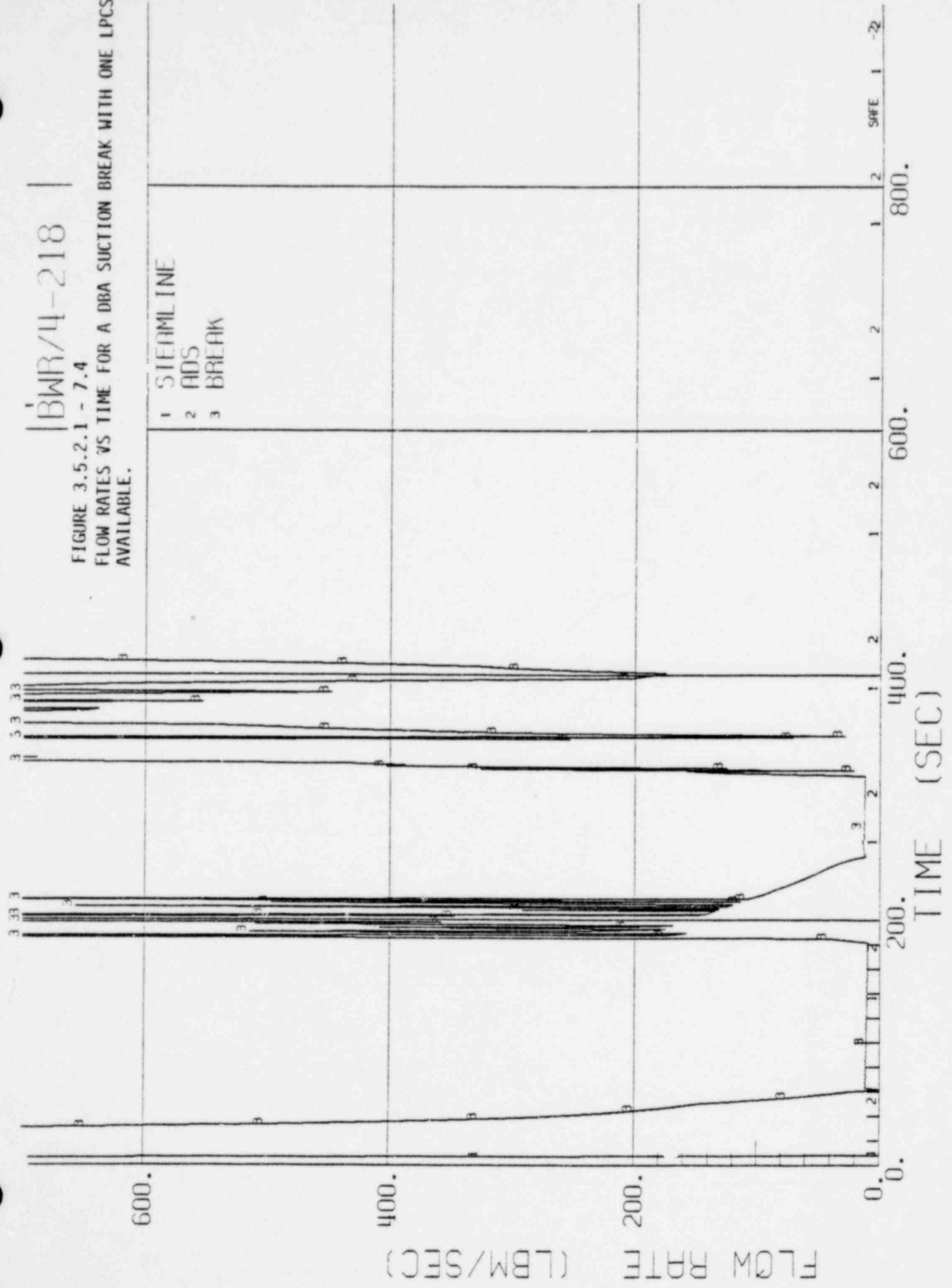
1549 055

BWR/4-218

FIGURE 3.5.2.1 - 7.4

FLOW RATES VS TIME FOR A DBA SUCTION BREAK WITH ONE LPCS AVAILABLE.

- 1 STEAMLINE
- 2 ADS
- 3 BREAK



FLOW RATE (LBM/SEC)

SAFE 1 -2

800.

600.

400.

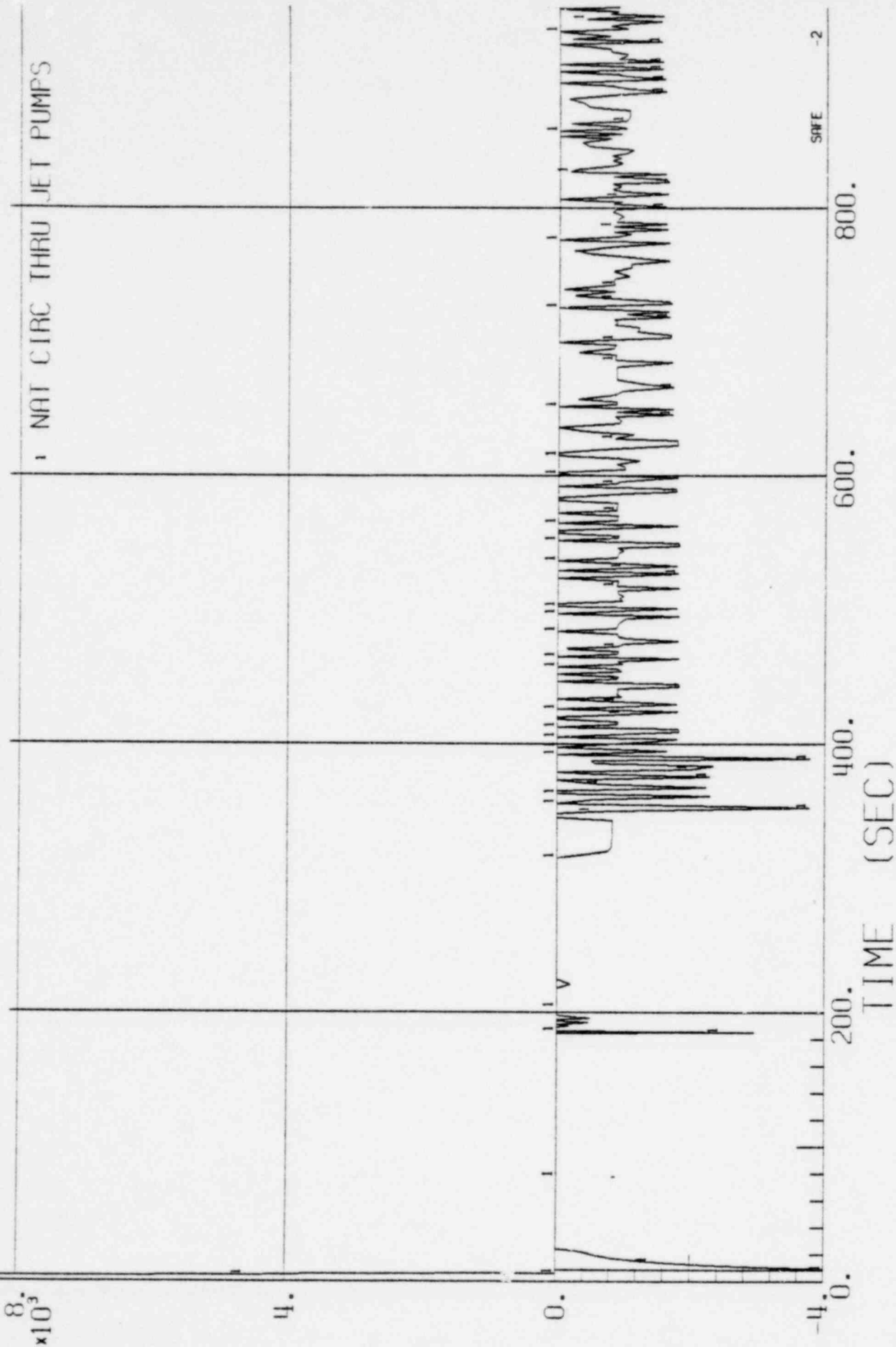
200.

0.

TIME (SEC)

BWR/4-218

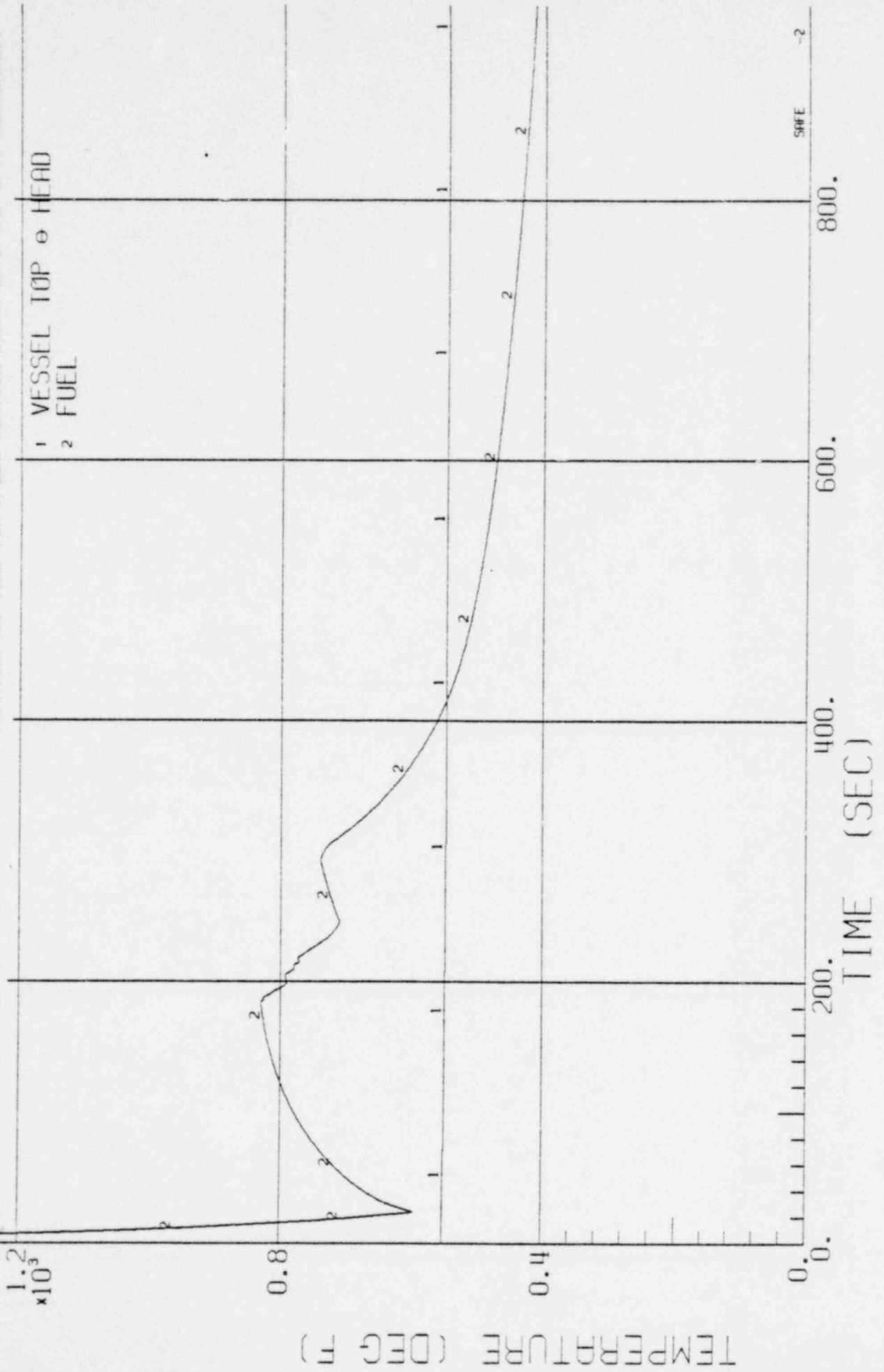
FIGURE 3.5.2.1 - 7.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A DBA SUCTION BREAK WITH ONE LPCS AVAILABLE.



1549 057 FLOW RATE (LBM/SEC)

BWR/4-218

FIGURE 3.5.2.1 - 7.6 TEMPERATURE VS TIME FOR A DBA SUCTION BREAK WITH ONE LPCS AVAILABLE.



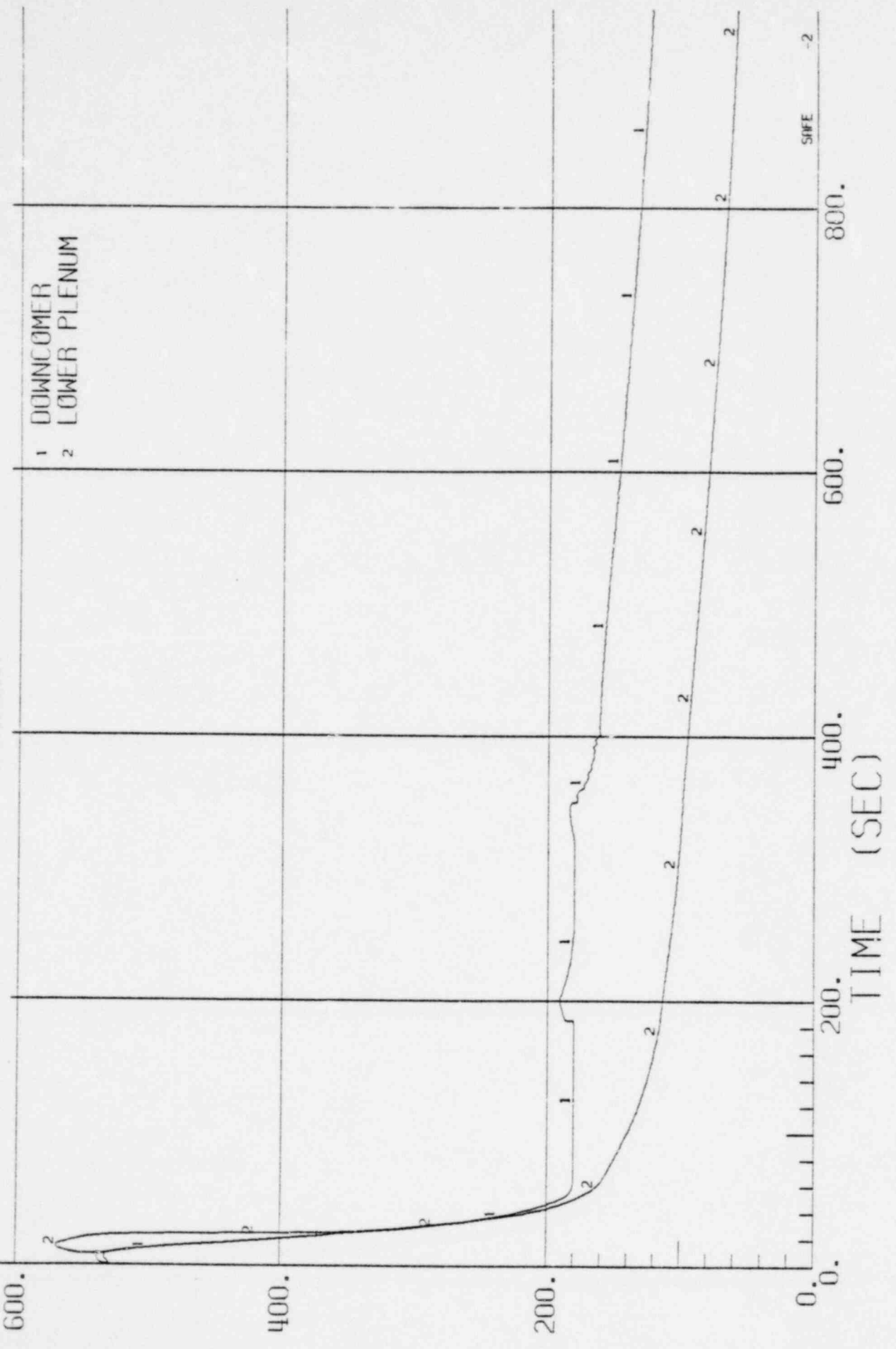
TEMPERATURE (DEG F)

1549 058

SAFE -2

BWR/4-218

FIGURE 3.5.2.1 - 7.7 ENTHALPY VS TIME FOR A DBA SUCTION BREAK WITH ONE LPCS AVAILABLE.

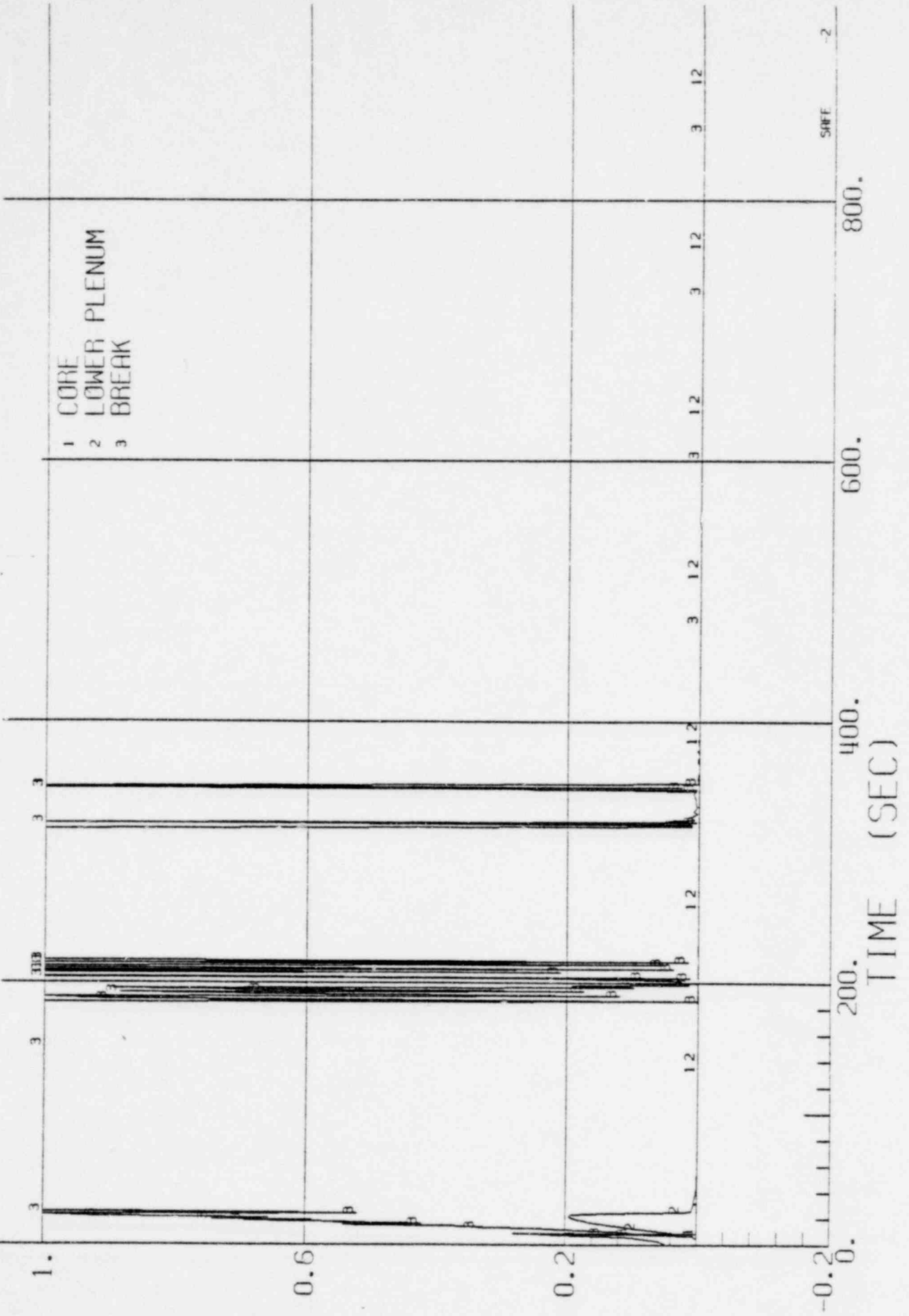


ENTHALPY (BTU/LBM)
1549 659

SAFE -2

BWR/4-218

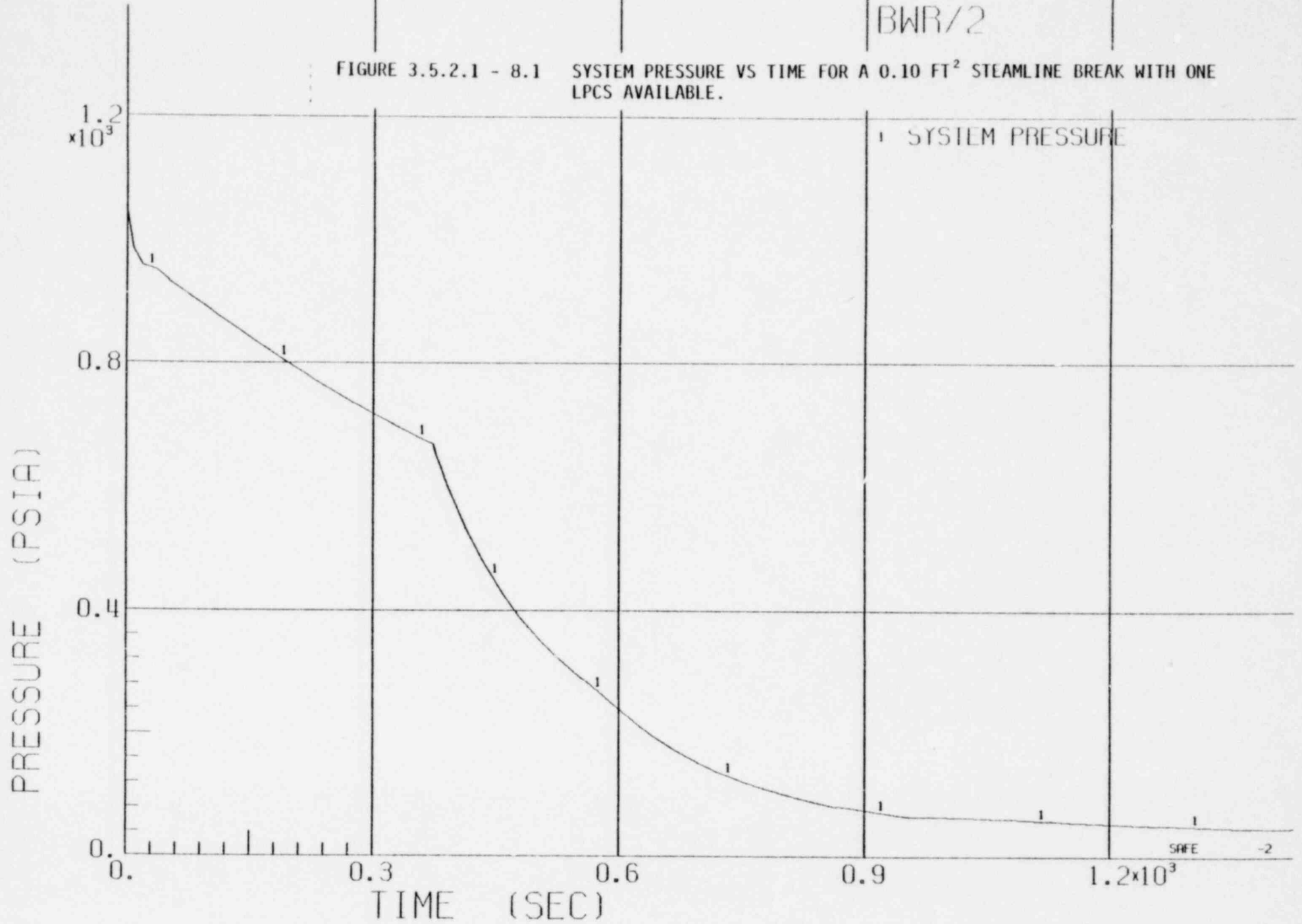
FIGURE 3.5.2.1 - 7.8 QUALITY VS TIME FOR A DBA SUCTION BREAK WITH ONE LPCS AVAILABLE.



1549 060
QUALITY

BWR/2

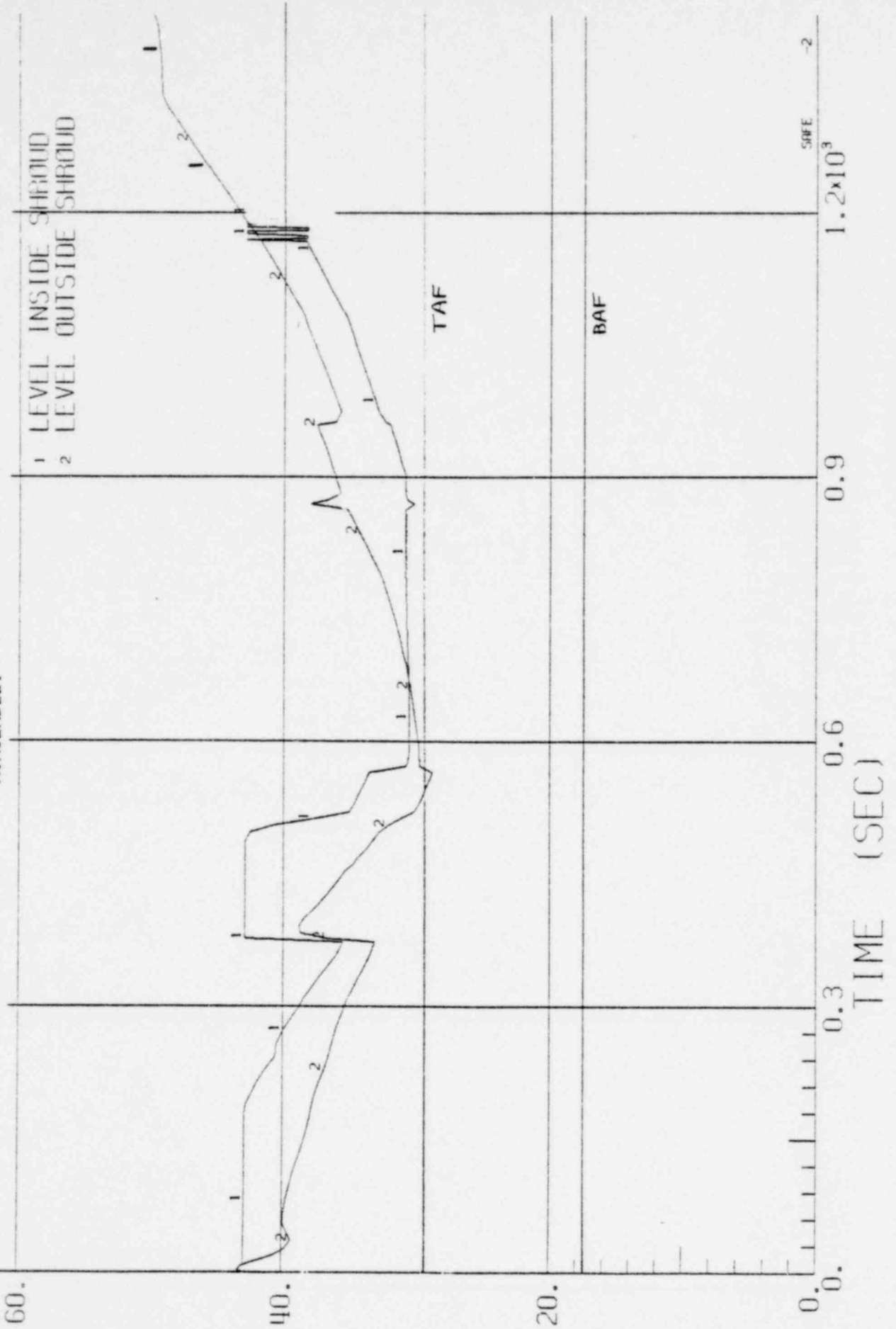
FIGURE 3.5.2.1 - 8.1 SYSTEM PRESSURE VS TIME FOR A 0.10 FT² STEAMLINE BREAK WITH ONE LPCS AVAILABLE.



1549 061

BWR/2

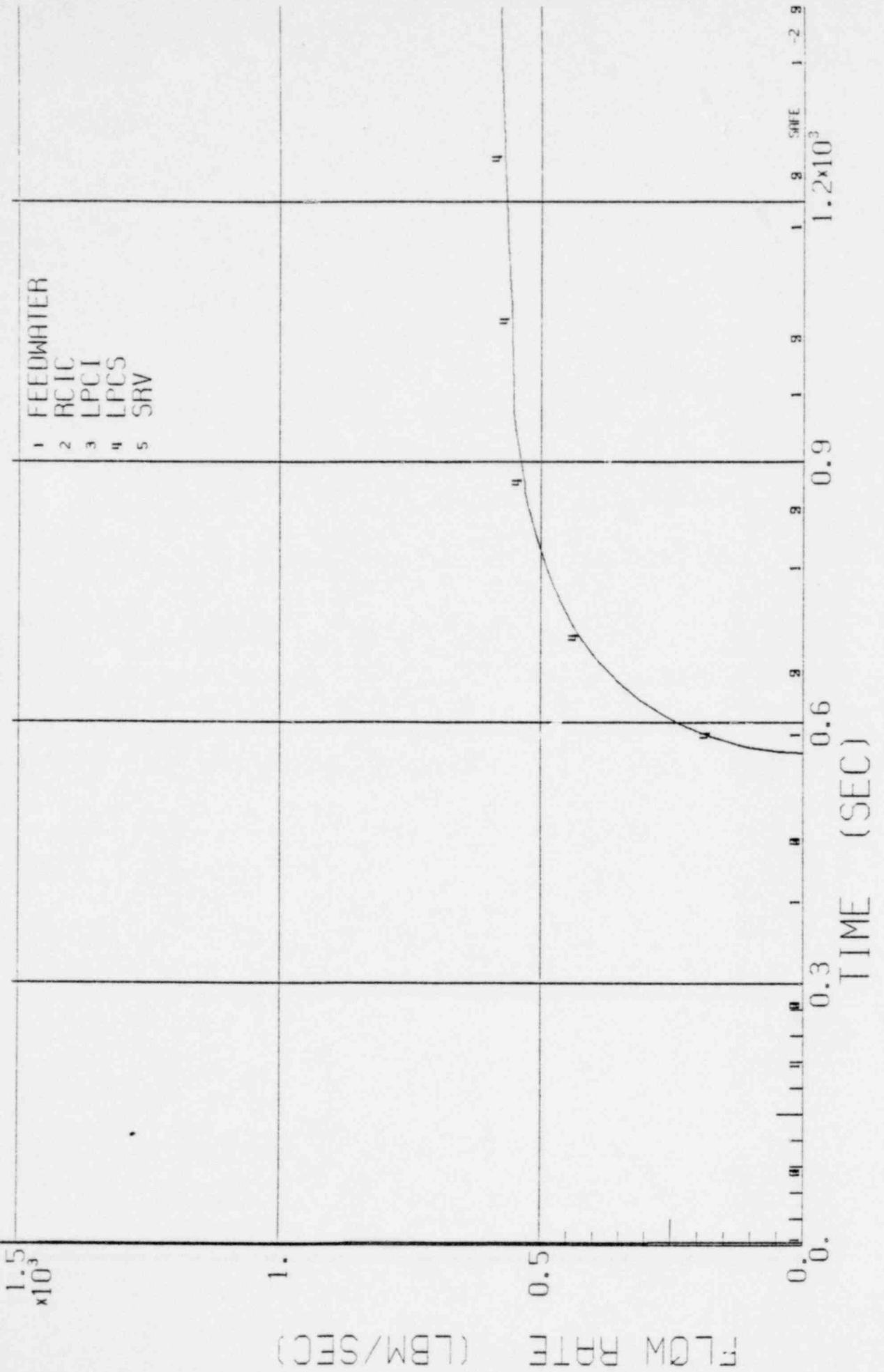
FIGURE 3.5.2.1 - 8.2 WATER LEVEL VS TIME FOR A 0.10 FT² STEAMLINE BREAK WITH ONE LPCS AVAILABLE.



WATER LEVEL (FT)

BWR/2

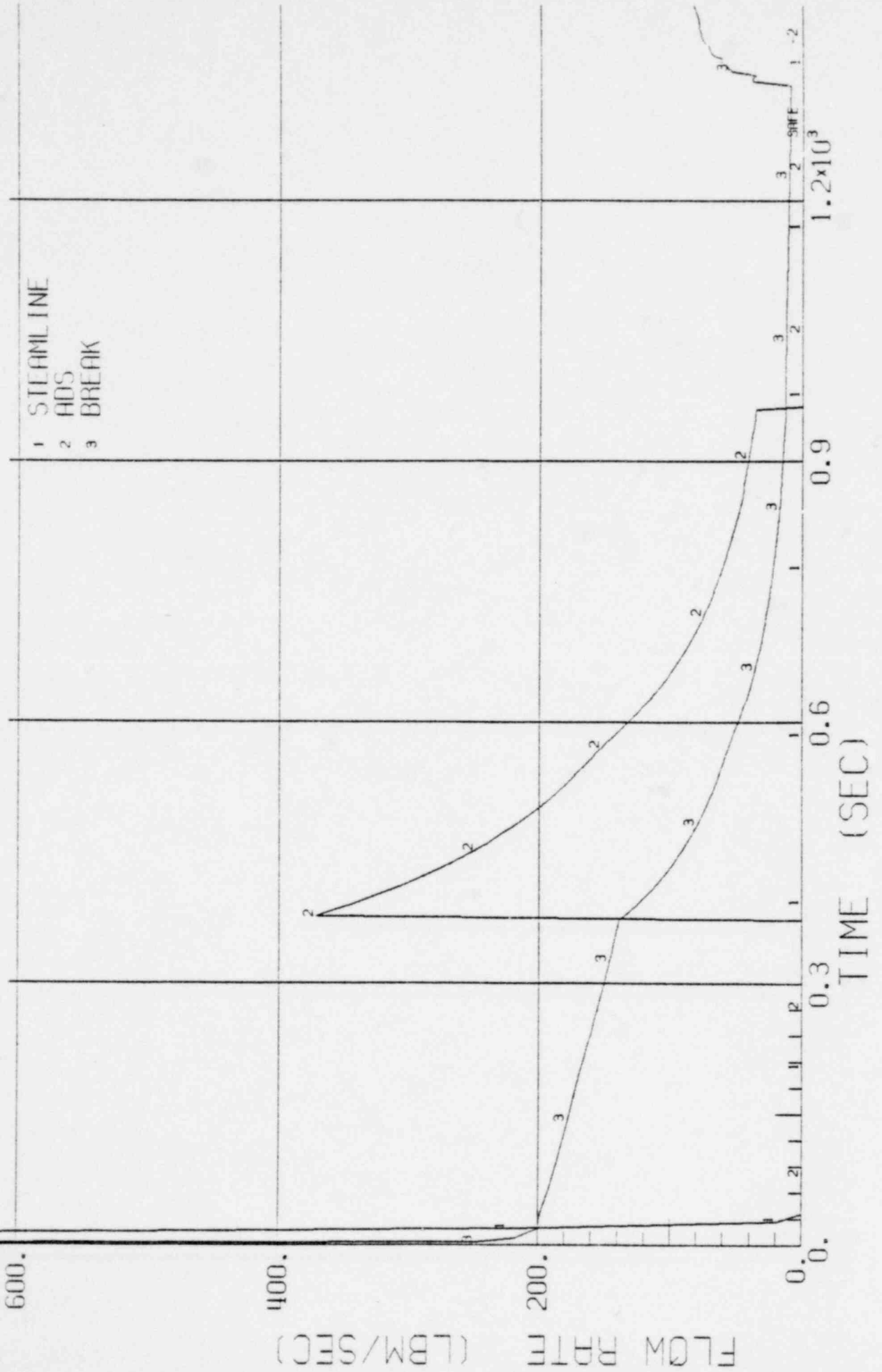
FIGURE 3.5.2.1 - 8.3 SYSTEM FLOW RATE VS TIME FOR A 0.10 FT² STEAMLINE BREAK WITH ONE LPCS AVAILABLE.



1549 063

BWR/2

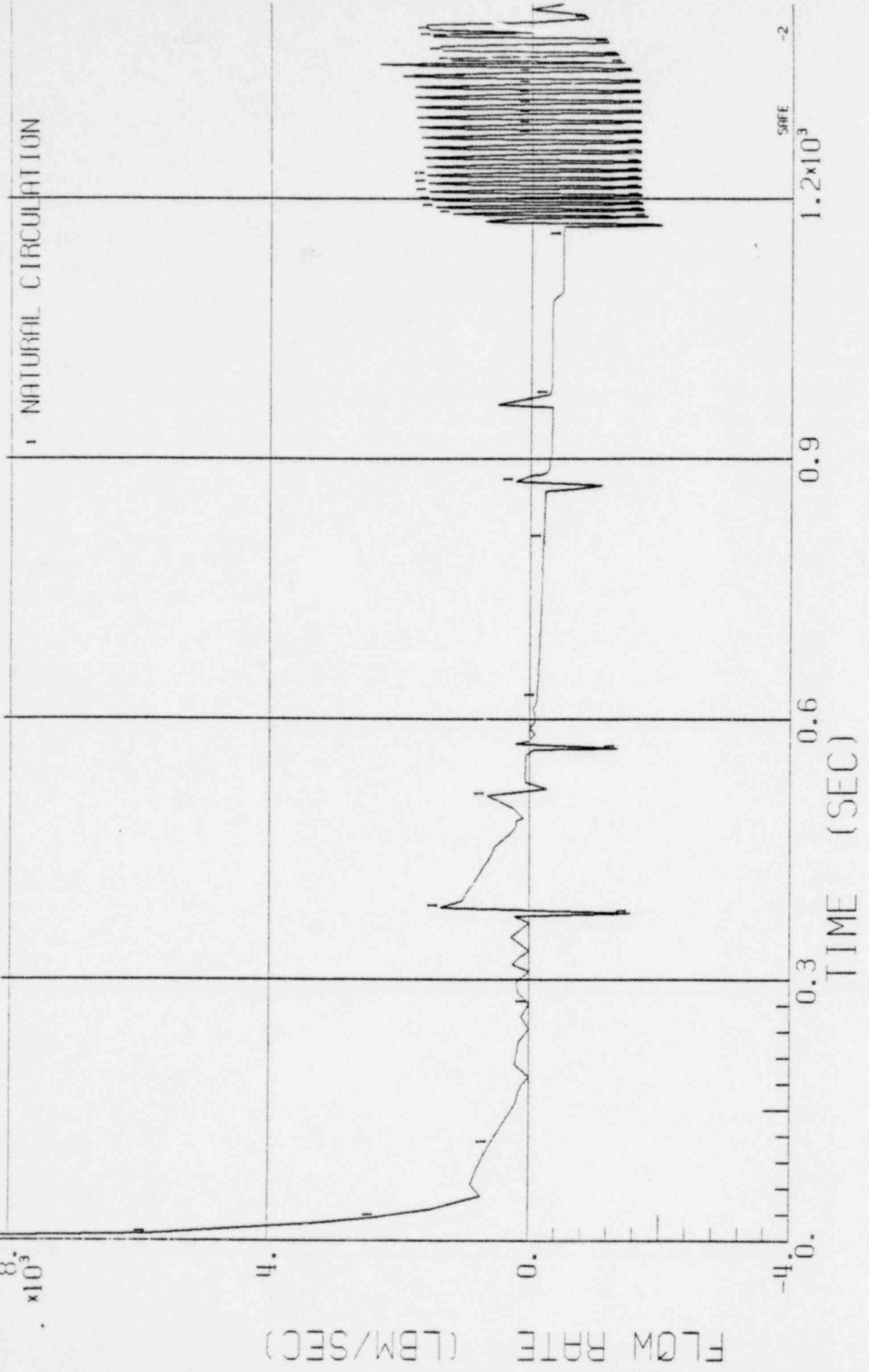
FIGURE 3.5.2.1 - 8.4 FLOW RATES VS TIME FOR A 0.10 FT² STEAMLINER BREAK WITH ONE LPCS AVAILABLE.



1549 064

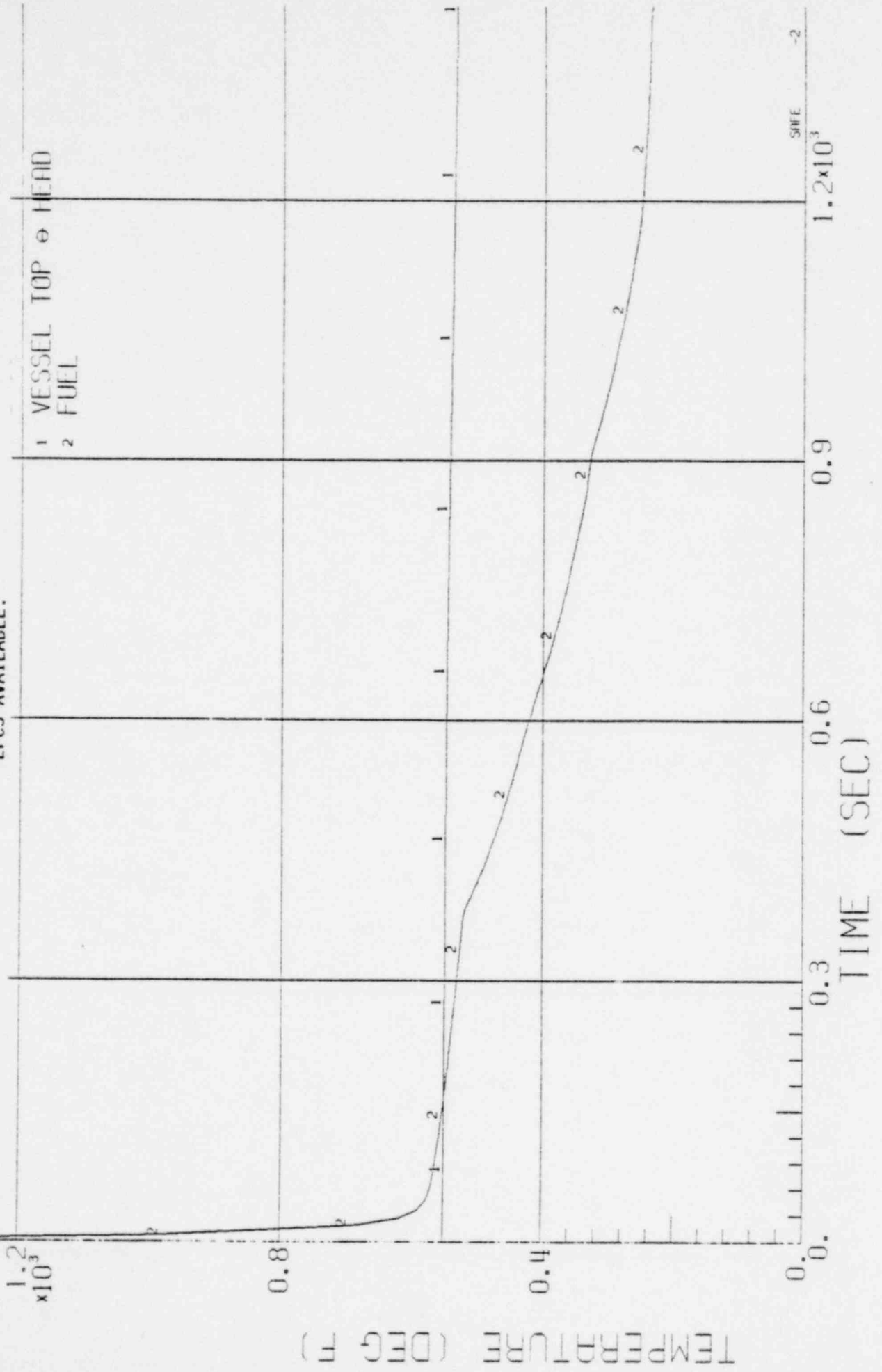
BWR/2

FIGURE 3.5.2.1 - 8.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.10 FT² STEAMLINE BREAK WITH ONE LPCS AVAILABLE.



BWR/2

FIGURE 3.5.2.1 - 8.6 TEMPERATURE VS TIME FOR A 0.10 FT² STEAMLINE BREAK WITH ONE LPCS AVAILABLE.



TEMPERATURE (DEG F)

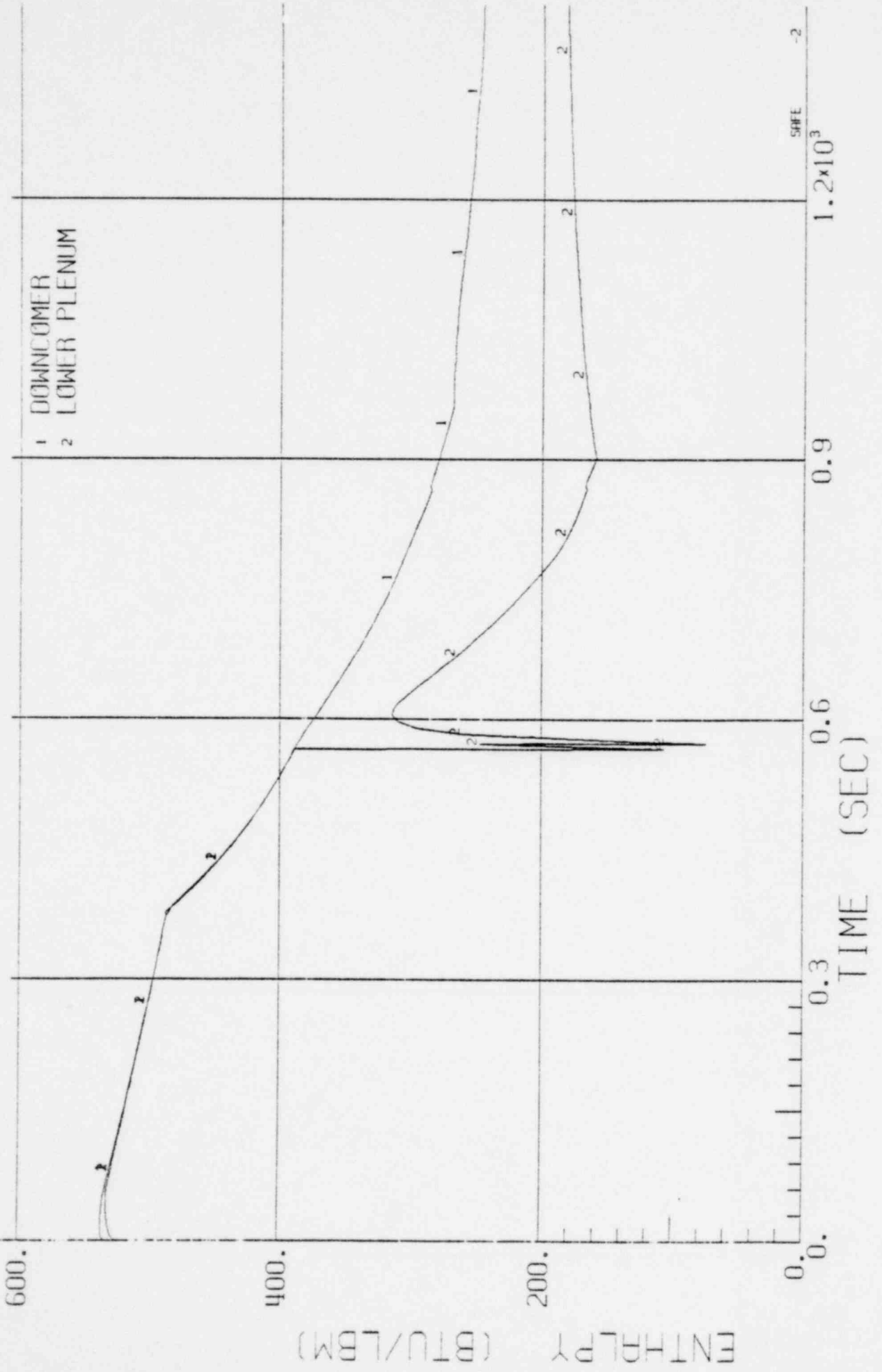
TIME (SEC)

1549 066

SAFE -2

BWR/2

FIGURE 3.5.2.1 - 8.7 ENTHALPY VS TIME FOR A 0.10 FT² STEAMLINE BREAK WITH ONE LPCS AVAILABLE.



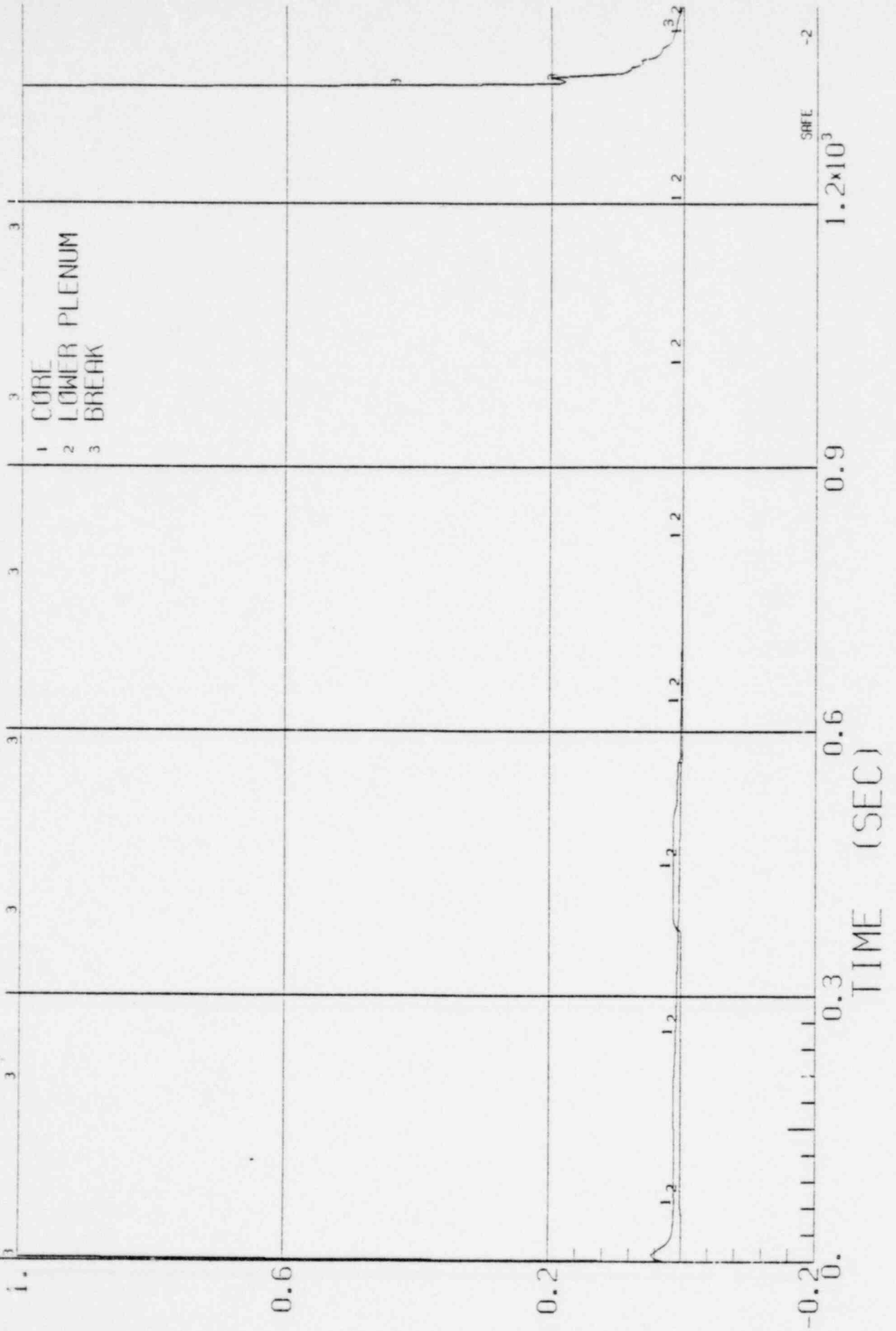
SAFE -2

ENTHALPY (BTU/LBM)

TIME (SEC)

BWR/2

FIGURE 3.5.2.1 - 8.8 QUALITY VS TIME FOR A 0.10 FT² STEAMLINE BREAK WITH ONE LPCS AVAILABLE.

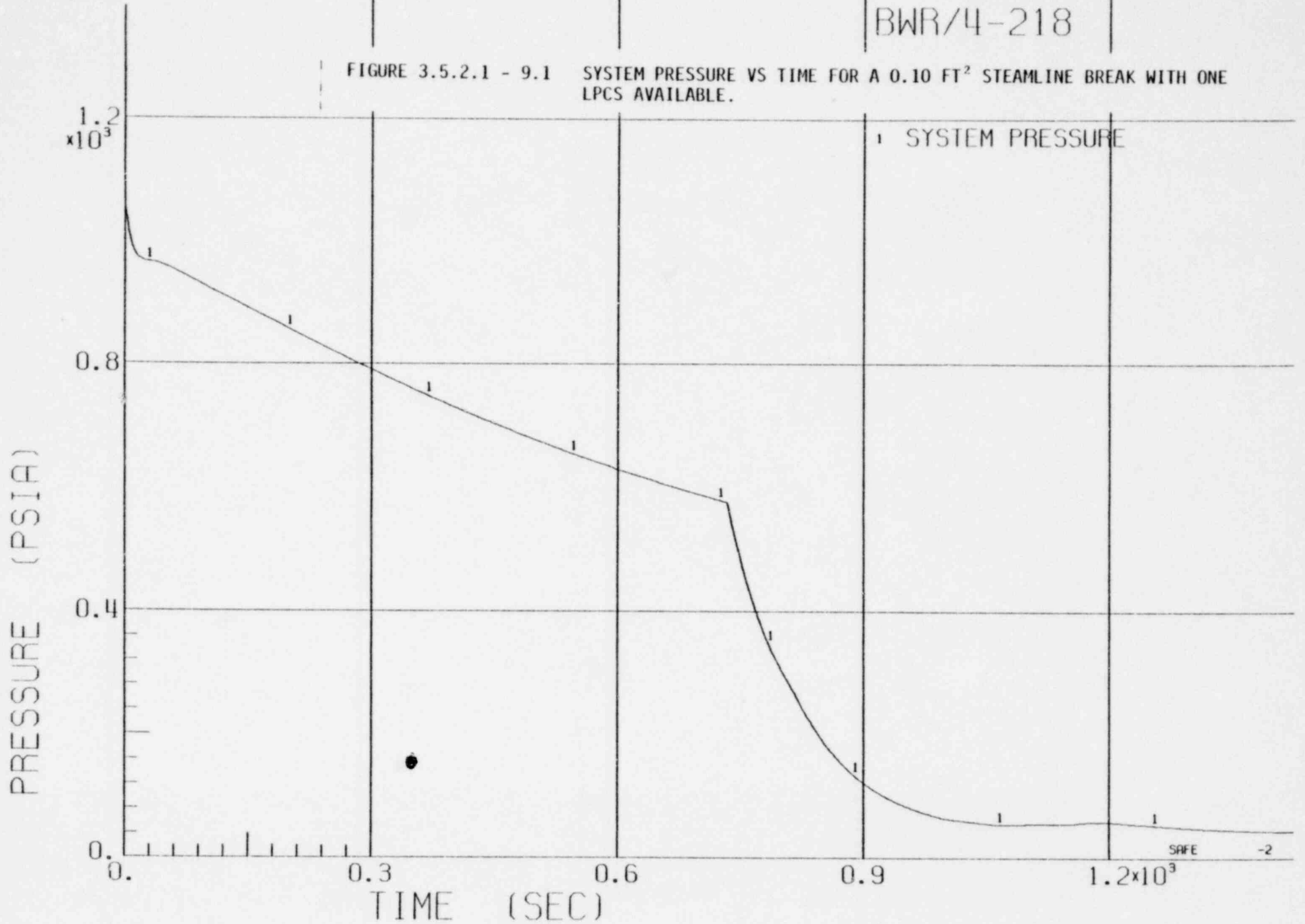


QUALITY

1549 068

BWR/4-218

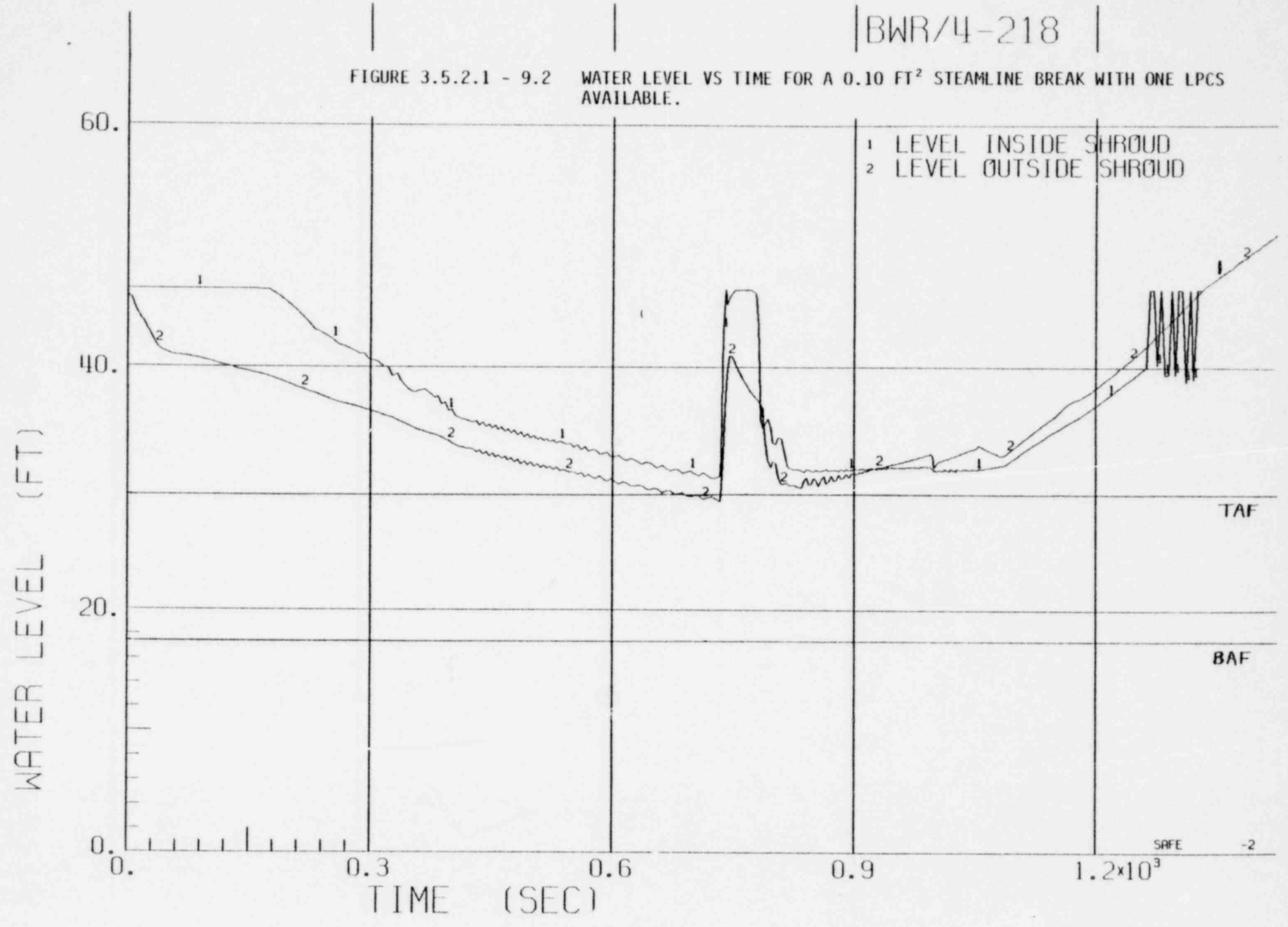
FIGURE 3.5.2.1 - 9.1 SYSTEM PRESSURE VS TIME FOR A 0.10 FT² STEAMLINE BREAK WITH ONE LPCS AVAILABLE.



1549 069

BWR/4-218

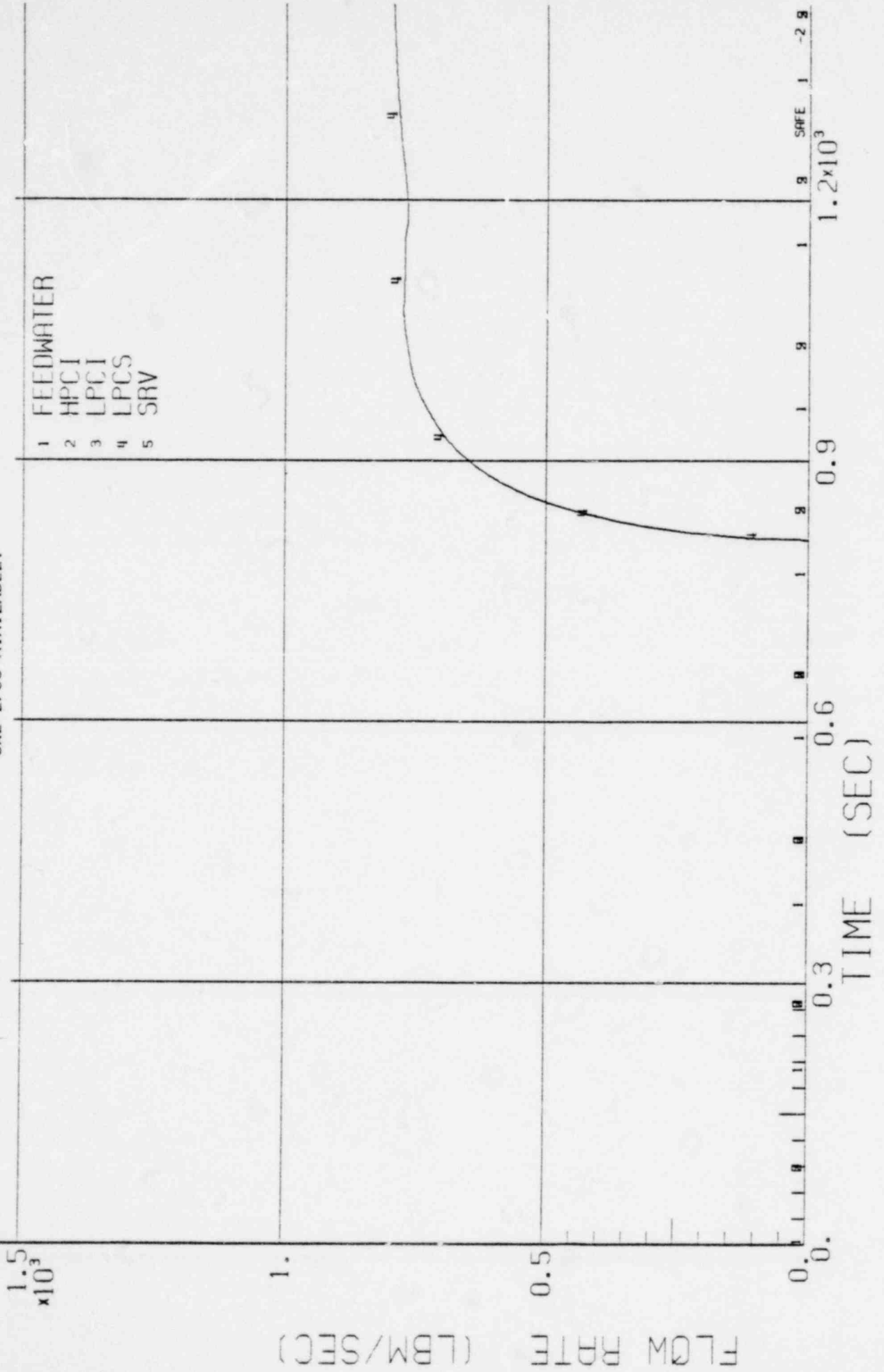
FIGURE 3.5.2.1 - 9.2 WATER LEVEL VS TIME FOR A 0.10 FT² STEAMLINE BREAK WITH ONE LPCS AVAILABLE.



1549 070

BWR/4-218

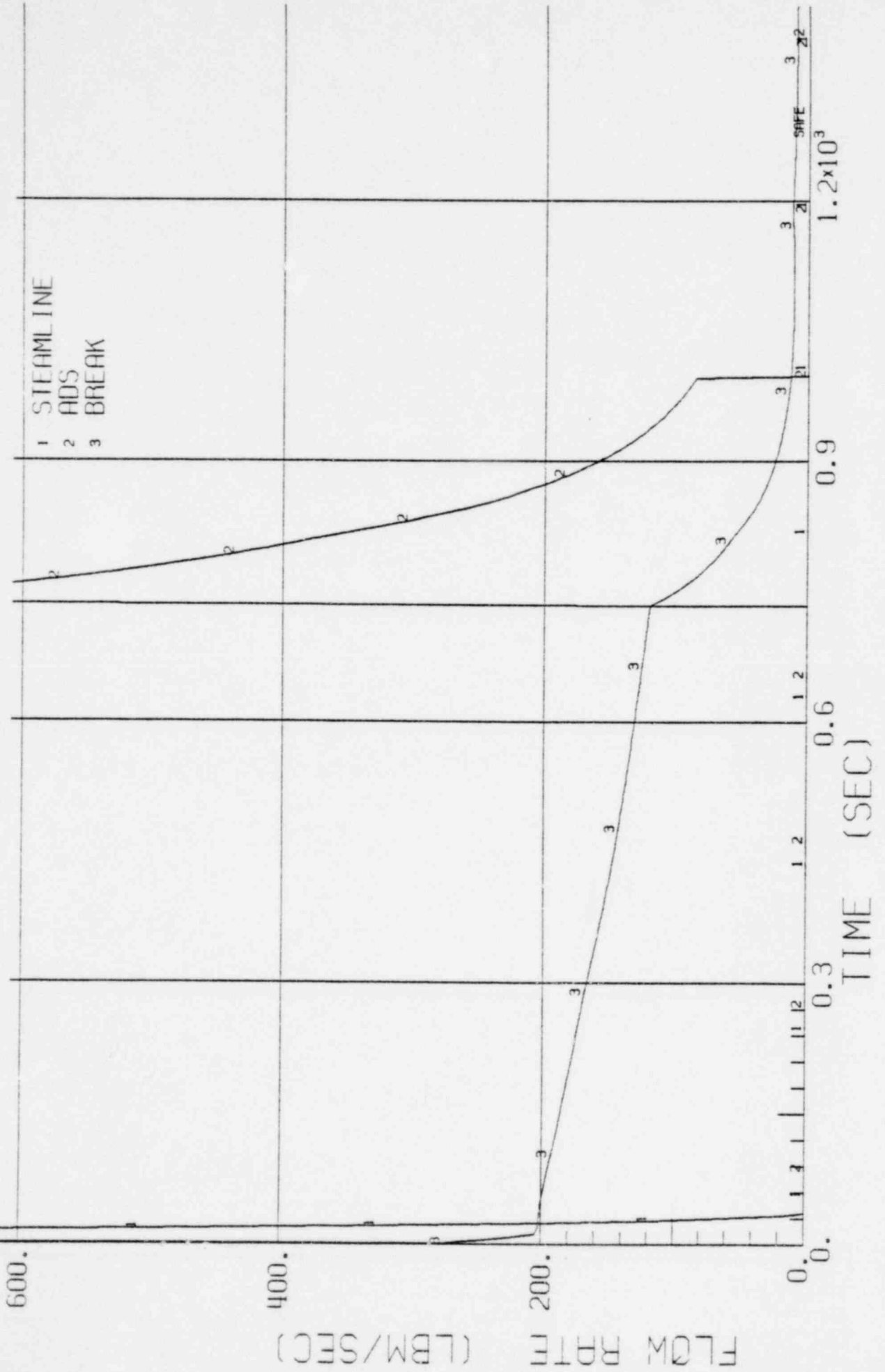
FIGURE 3.5.2.1 - 9.3 SYSTEM FLOW RATES VS TIME FOR A 0.10 FT² STEAMLINE BREAK WITH ONE LPCS AVAILABLE.



1549 071

BWR/4-218

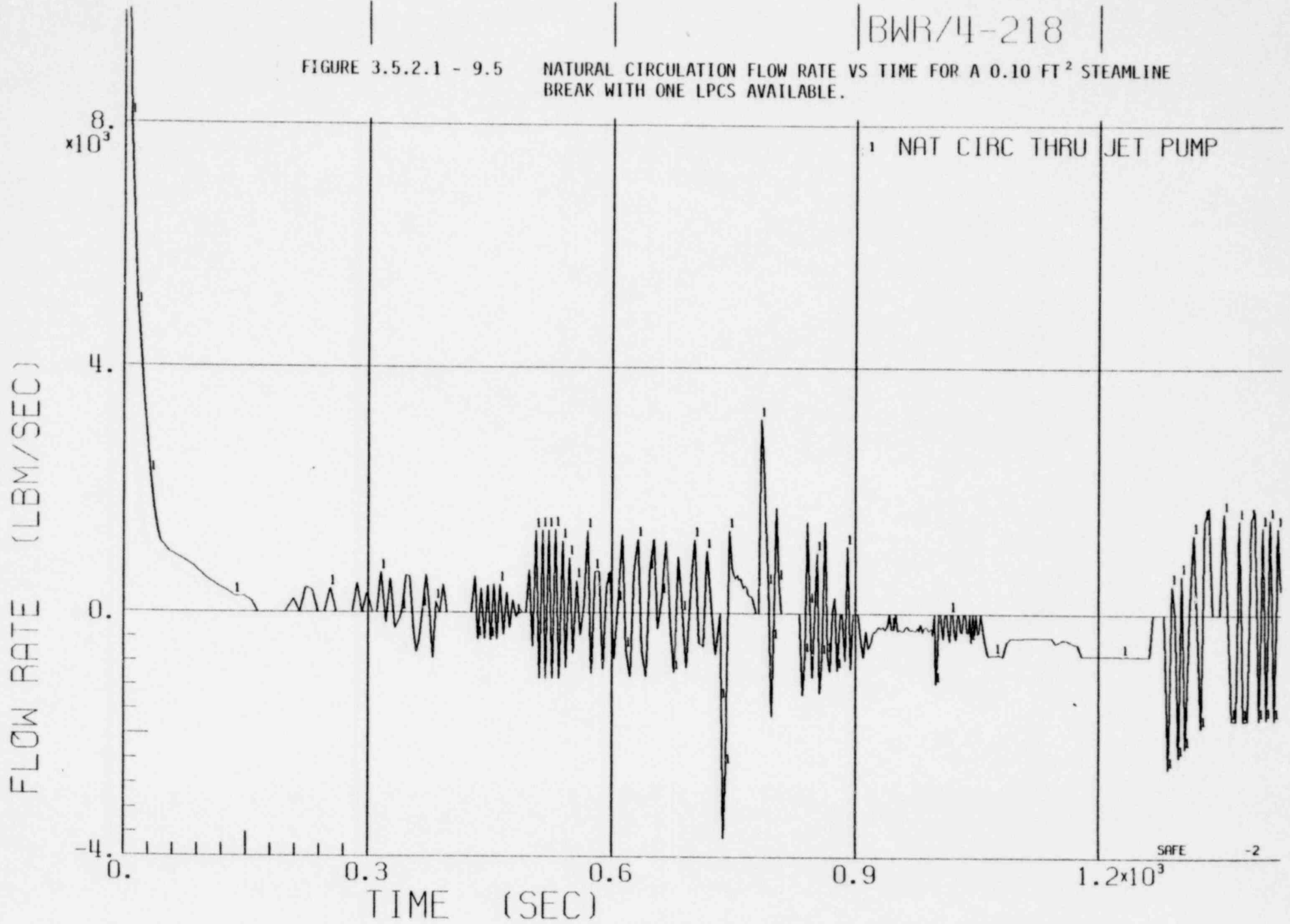
FIGURE 3.5.2.1 - 9.4 FLOW RATES VS TIME FOR A 0.10 FT² STEAMLINER BREAK WITH ONE LPCS AVAILABLE.



1549 072

BWR/4-218

FIGURE 3.5.2.1 - 9.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.10 FT² STEAMLINE BREAK WITH ONE LPCS AVAILABLE.

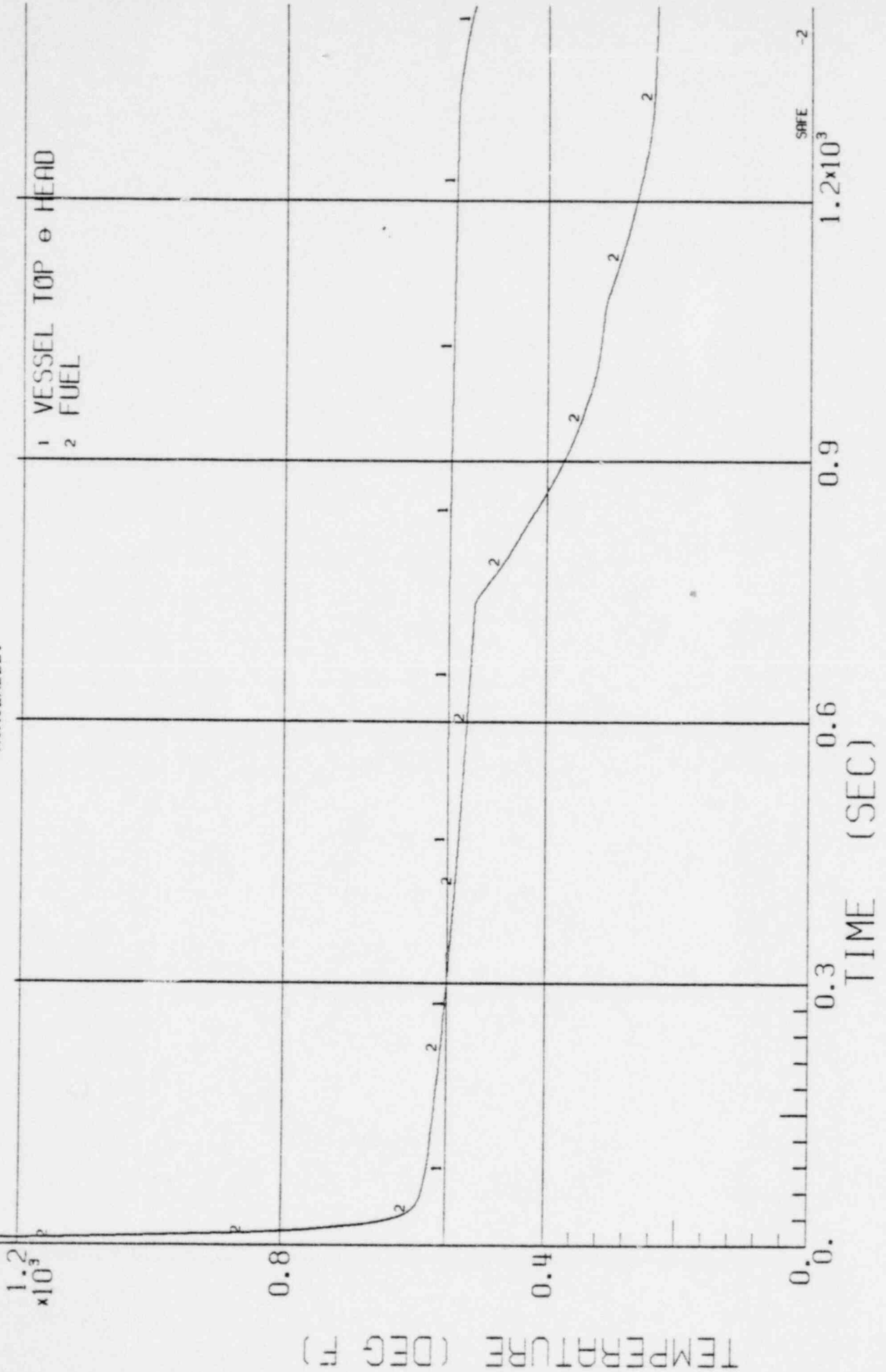


1 NAT CIRC THRU JET PUMP

1549 073

BWR/4-218

FIGURE 3.5.2.1 - 9.6 TEMPERATURE VS TIME FOR A 0.10 FT² STEAMLINER BREAK WITH ONE LPCS AVAILABLE.



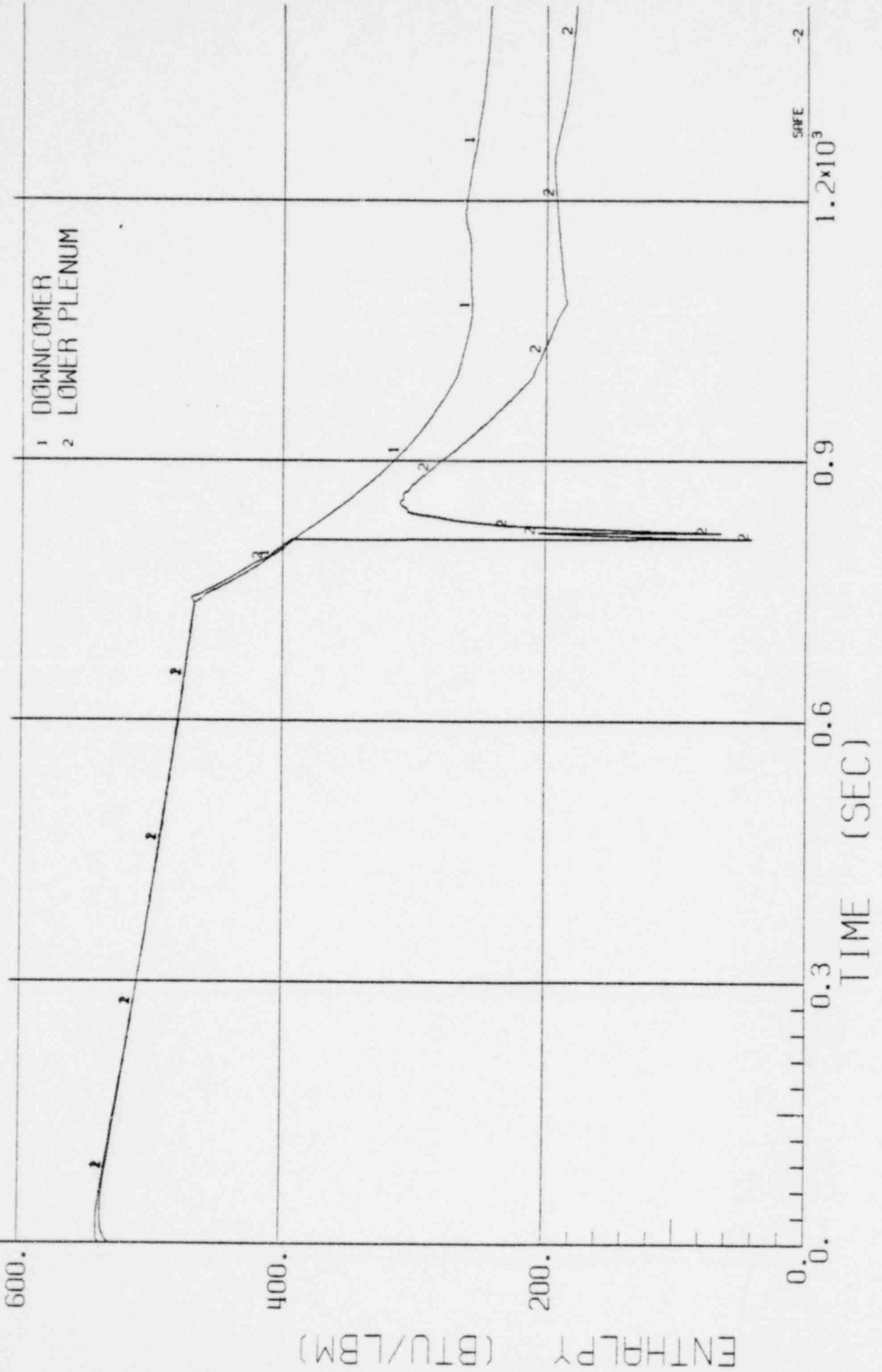
SAFE -2

TEMPERATURE (DEG F)

TIME (SEC)

BWR/4-218

FIGURE 3.5.2.1 - 9.7 ENTHALPY VS TIME FOR A 0.10 FT² STEAMLINE BREAK WITH ONE LPCS AVAILABLE.



ENTHALPY (BTU/LBM)

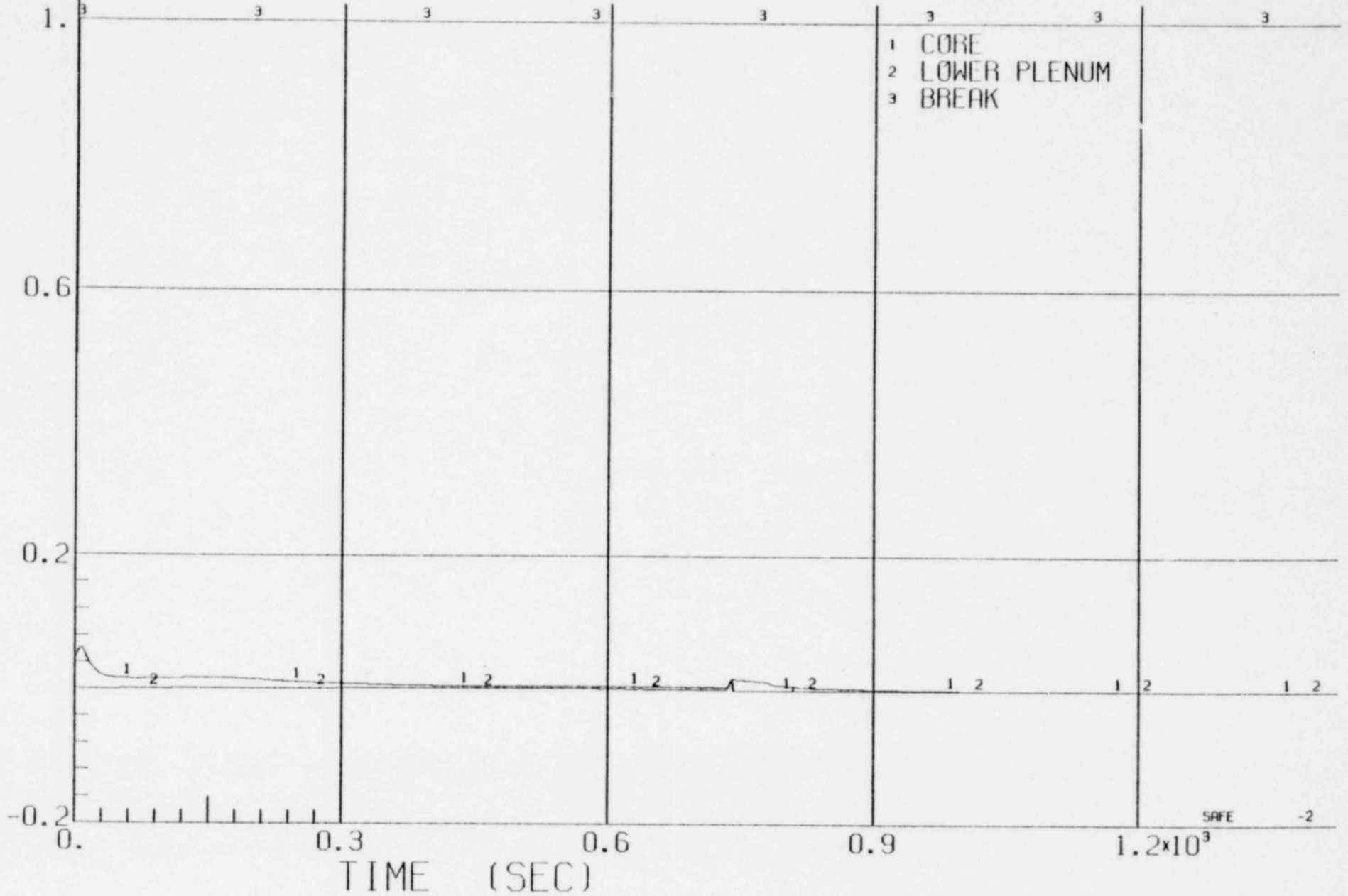
1549 075

SAFE -2

BWR/4-218

FIGURE 3.5.2.1 - 9.8

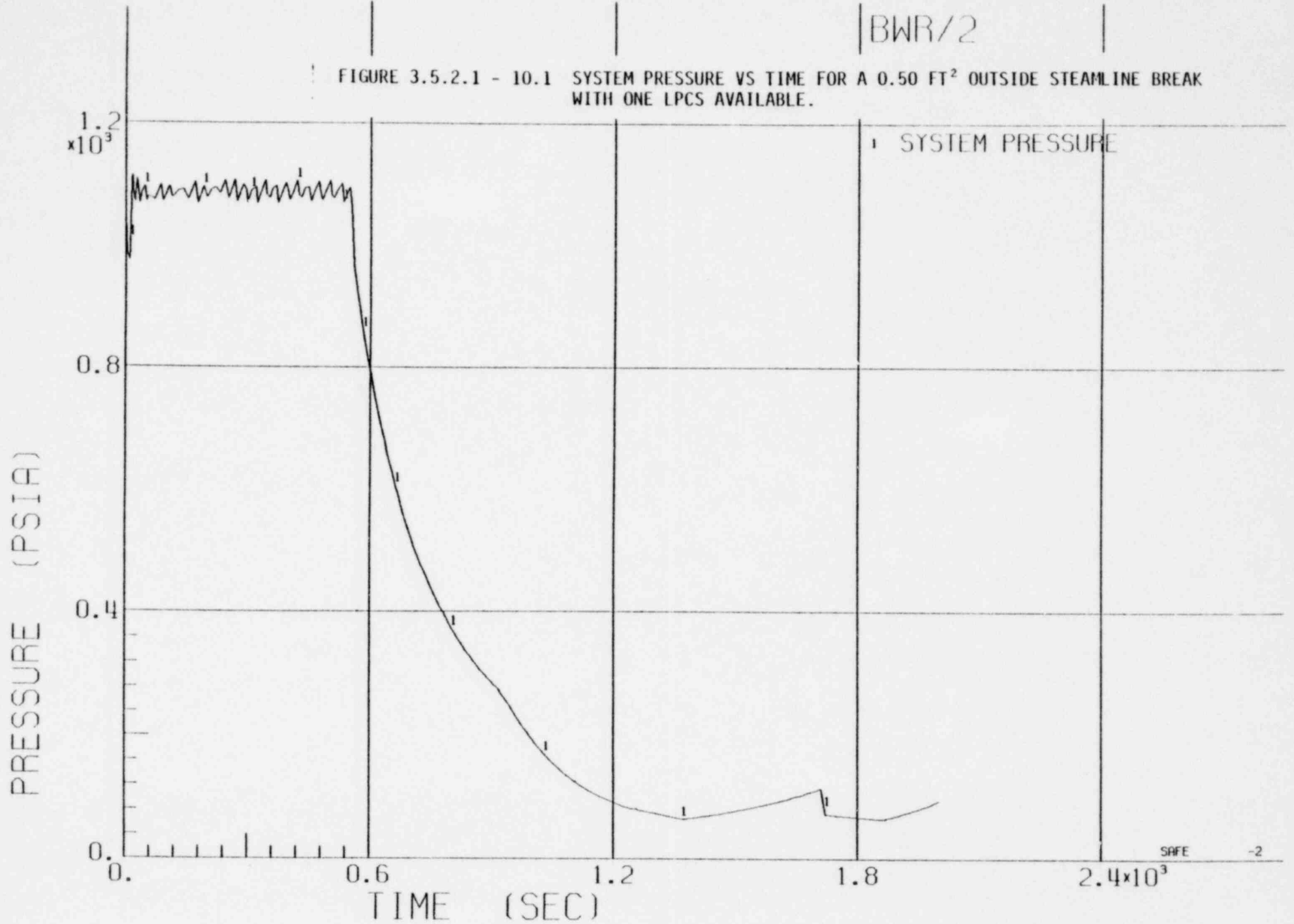
QUALITY VS TIME FOR A 0.10 FT² STEAMLINE BREAK WITH ONE LPCS AVAILABLE.



ALLIAND
1549 076

BWR/2

FIGURE 3.5.2.1 - 10.1 SYSTEM PRESSURE VS TIME FOR A 0.50 FT² OUTSIDE STEAMLINER BREAK WITH ONE LPCS AVAILABLE.



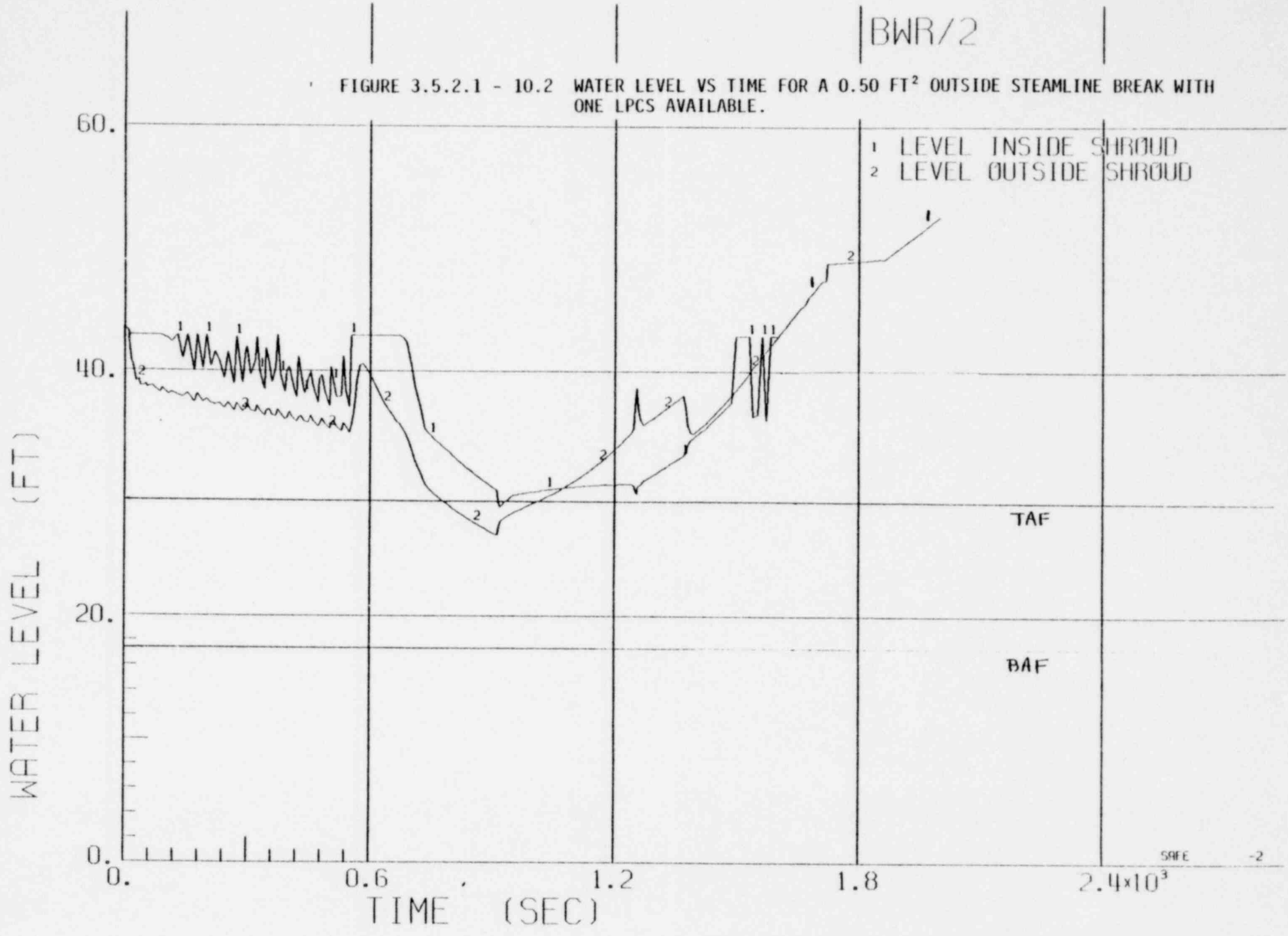
SAFE

-2

1549 077

BWR/2

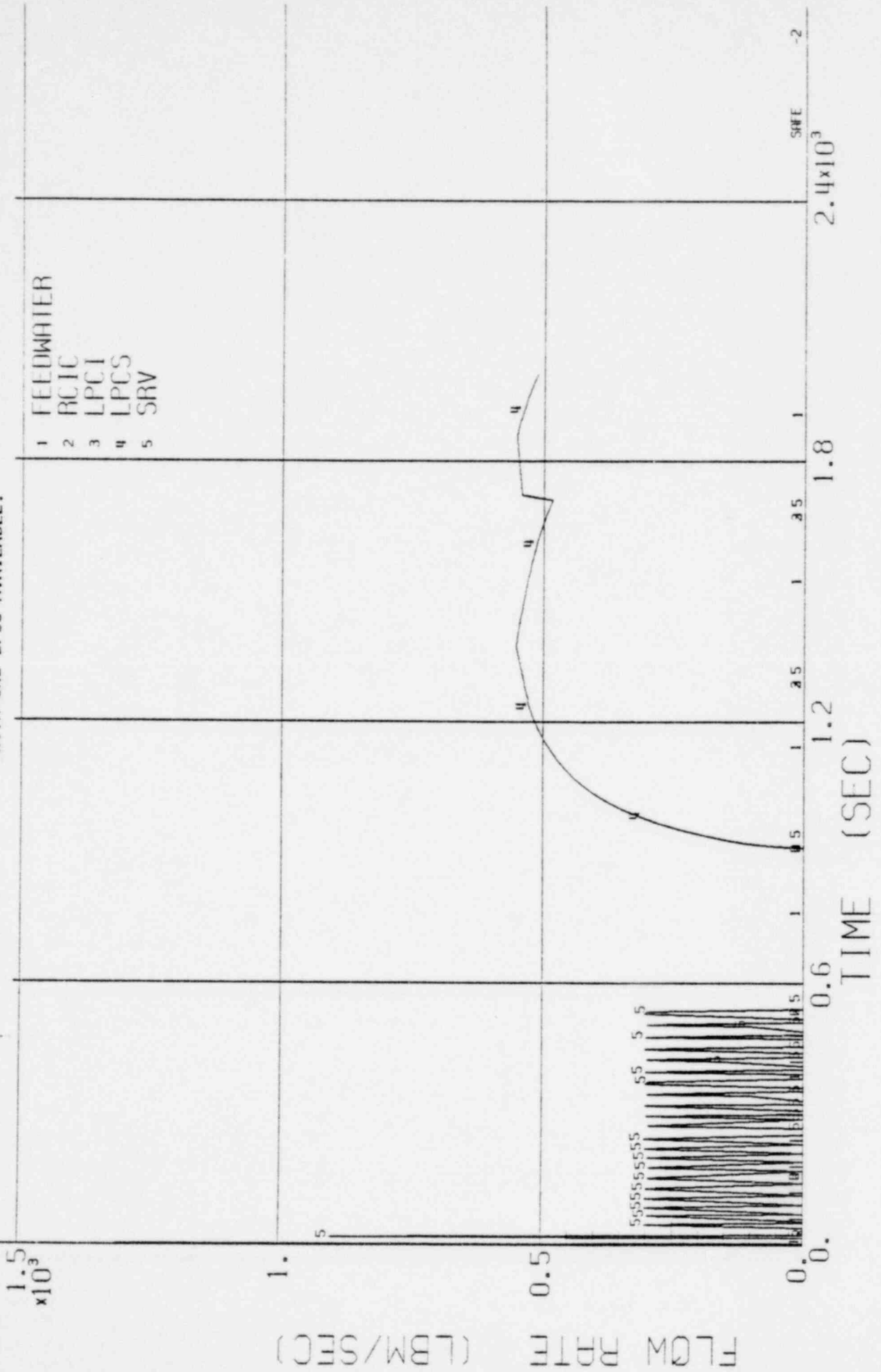
FIGURE 3.5.2.1 - 10.2 WATER LEVEL VS TIME FOR A 0.50 FT² OUTSIDE STEAMLINE BREAK WITH ONE LPCS AVAILABLE.



1549 078

BWR/2

FIGURE 3.5.2.1 - 10.3 SYSTEM FLOW RATES VS TIME FOR A 0.50 FT² OUTSIDE STEAMLINE BREAK WITH ONE LPCS AVAILABLE.



1549 079

FLOW RATE (LBM/SEC)

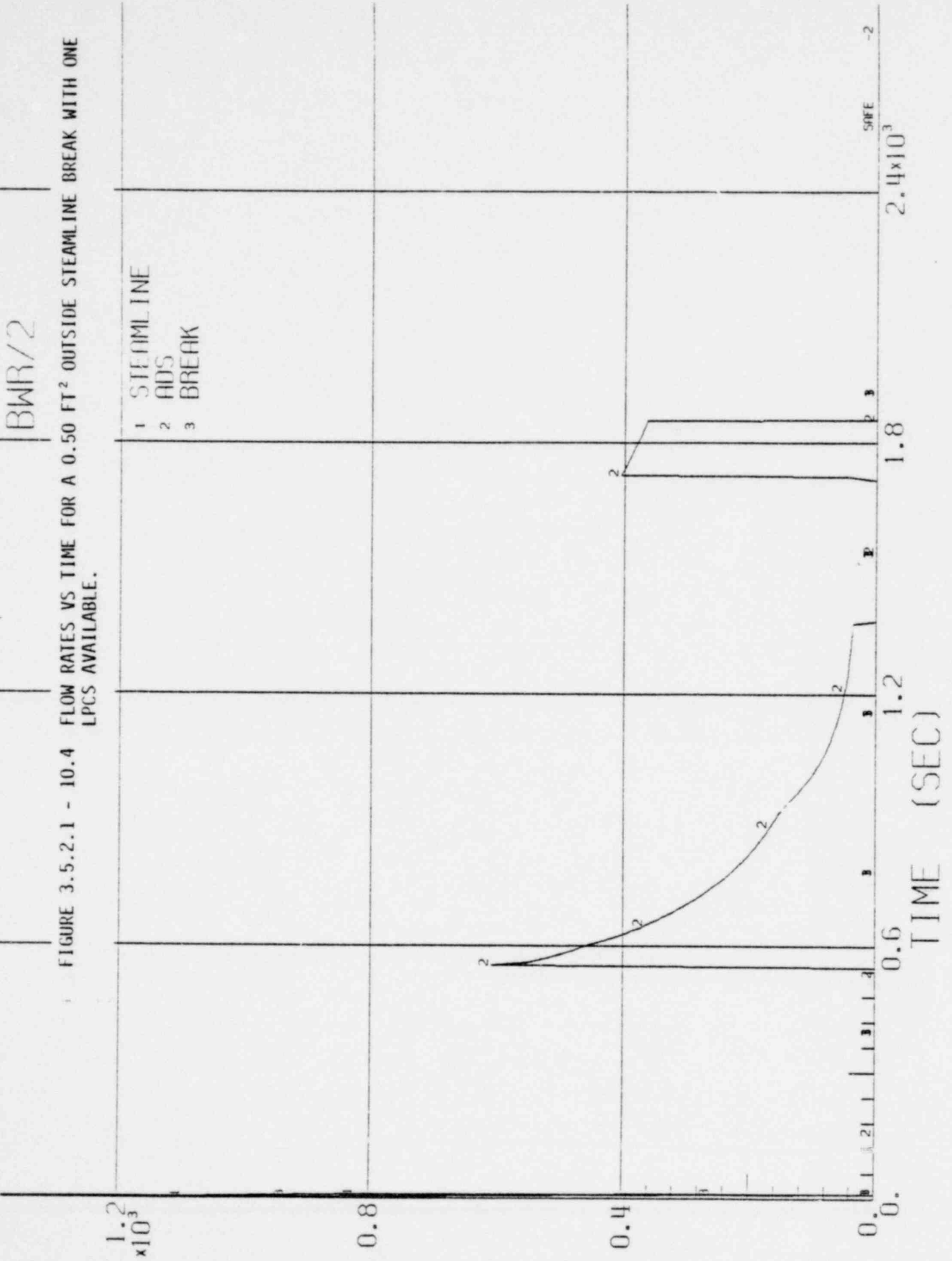
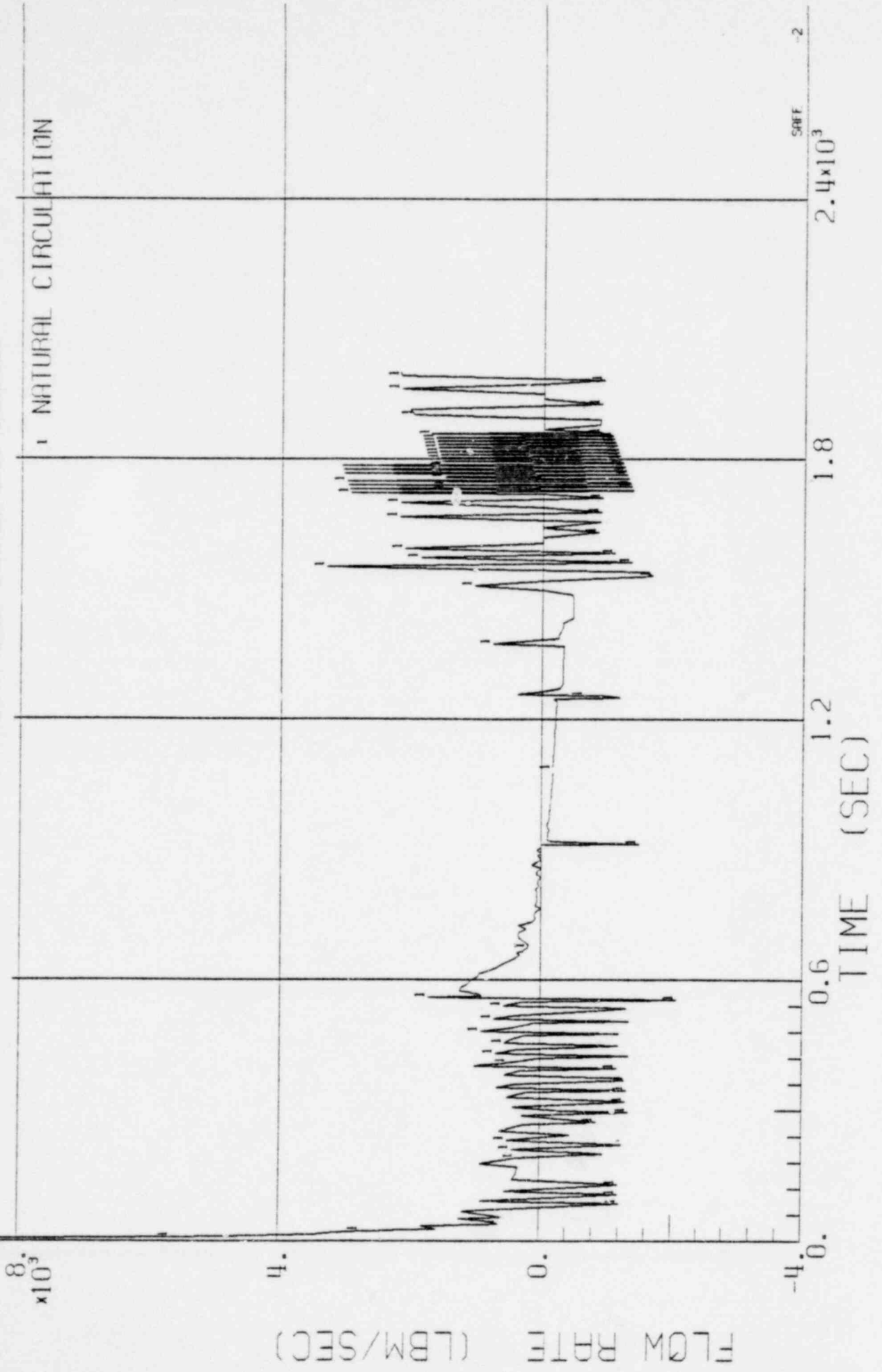


FIGURE 3.5.2.1 - 10.4 FLOW RATES VS TIME FOR A 0.50 FT² OUTSIDE STEAMLIN BREAK WITH ONE LPCS AVAILABLE.

BWR/2

BWR/2

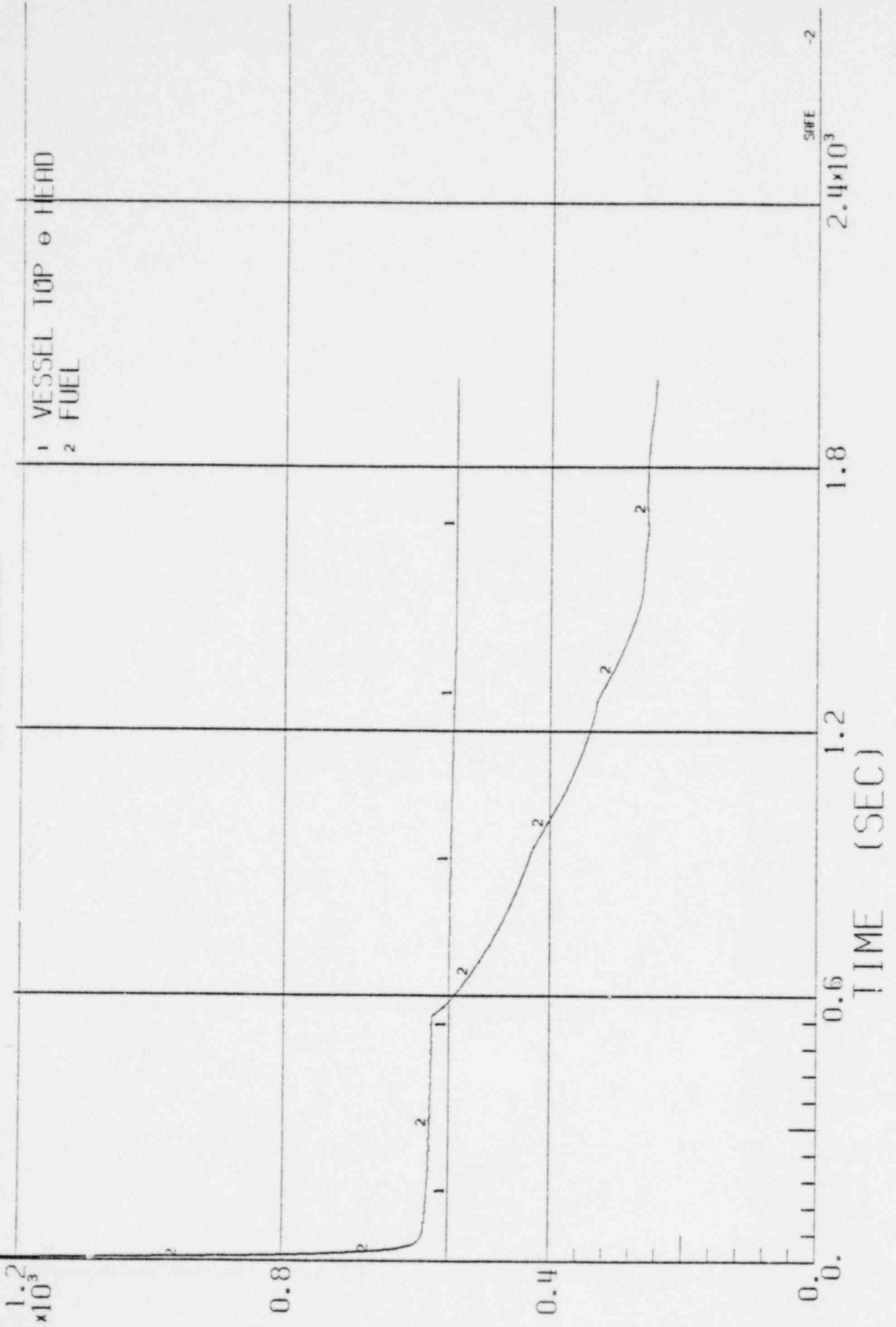
FIGURE 3.5.2.1 - 10.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.50 FT² OUTSIDE STEAMLINE BREAK WITH ONE LPCS AVAILABLE.



180 6451

BWR/2

FIGURE 3.5.2.1 - 10.6 TEMPERATURE VS TIME FOR A 0.50 FT² OUTSIDE STEAMLINE BREAK WITH ONE LPCS AVAILABLE.



TEMPERATURE (DEG F)

1549 082

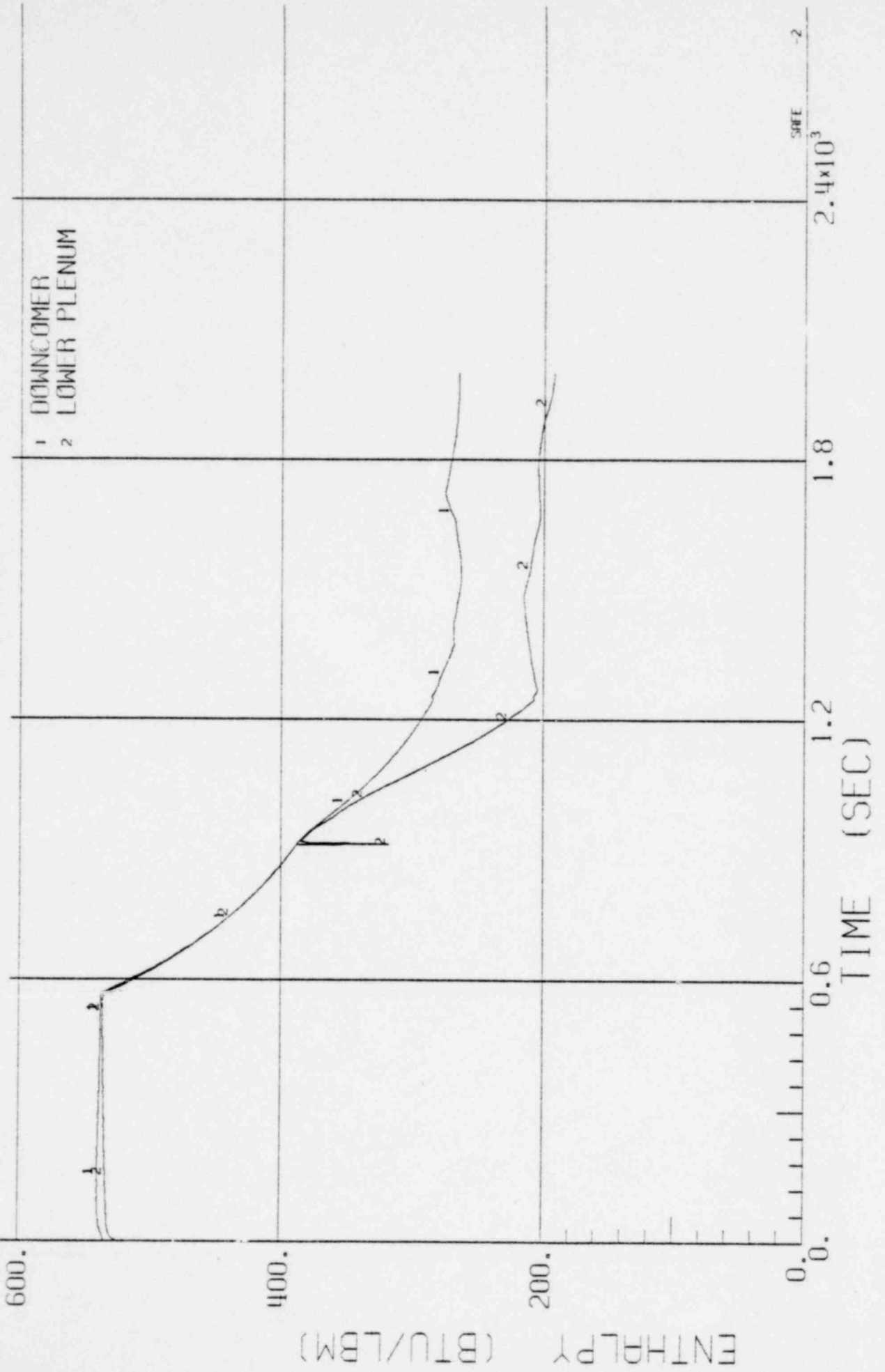
SAFE -2

2.4 $\times 10^3$

TIME (SEC)

BWR/2

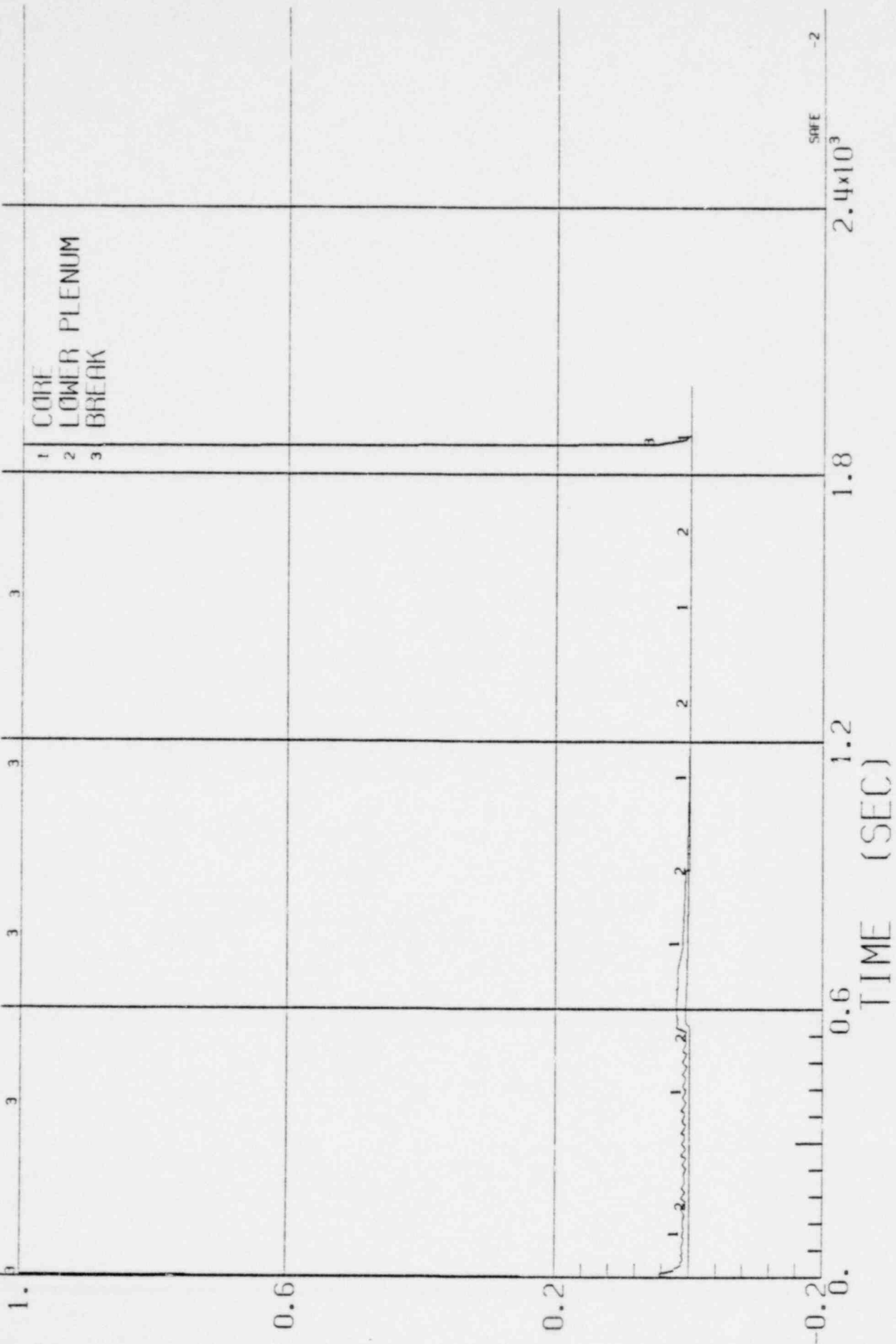
FIGURE 3.5.2.1 - 10.7 ENTHALPY VS TIME FOR A 0.50 FT² OUTSIDE STEAMLINE BREAK WITH ONE LPCA AVAILABLE.



1549 083

BWR/2

FIGURE 3.5.2.1 - 10.8 QUALITY VS TIME FOR A 0.50 FT² OUTSIDE STEAMLINE BREAK WITH ONE LPCS AVAILABLE.

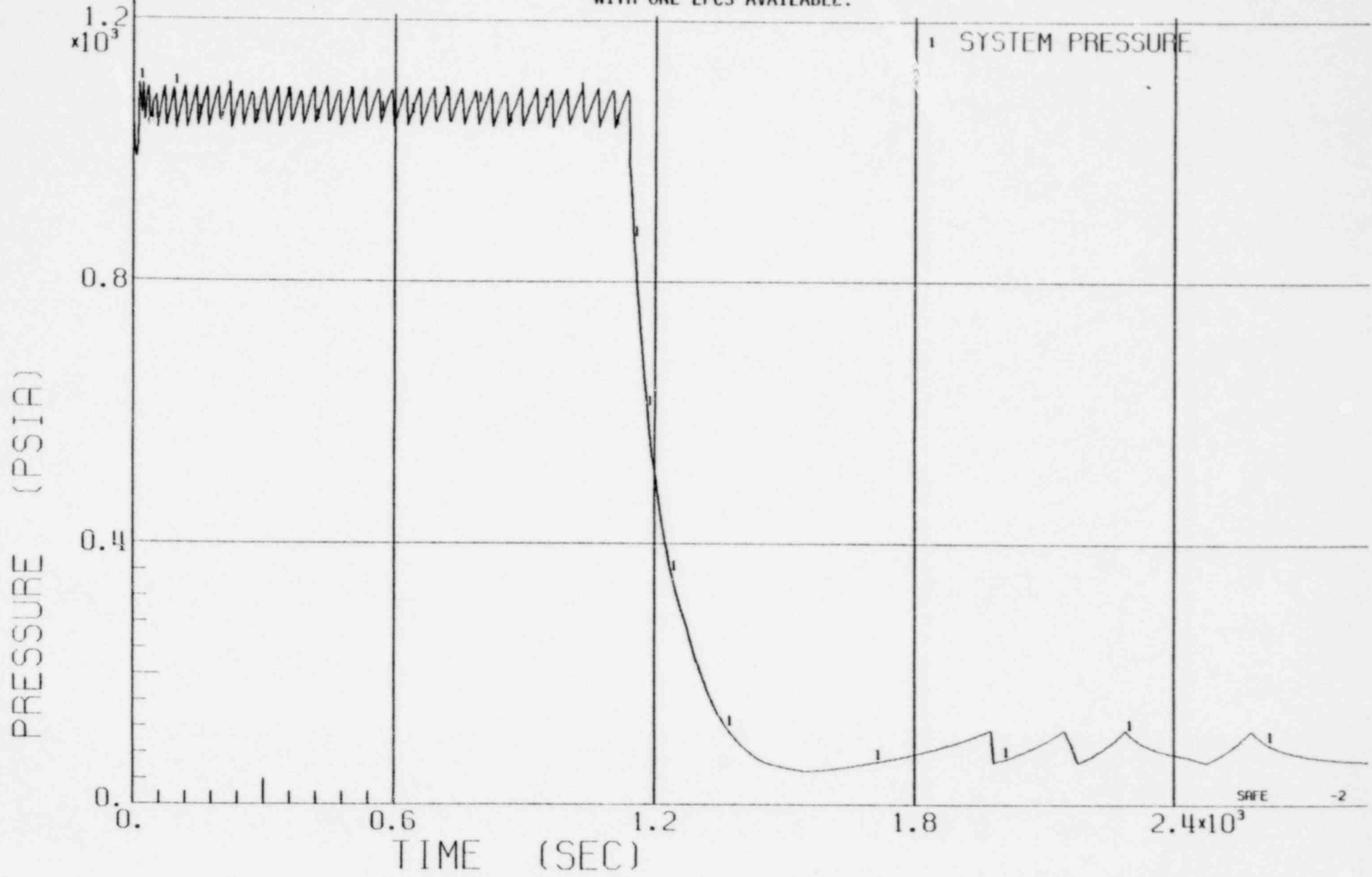


QUALITY

1542 08

BWR/4-218

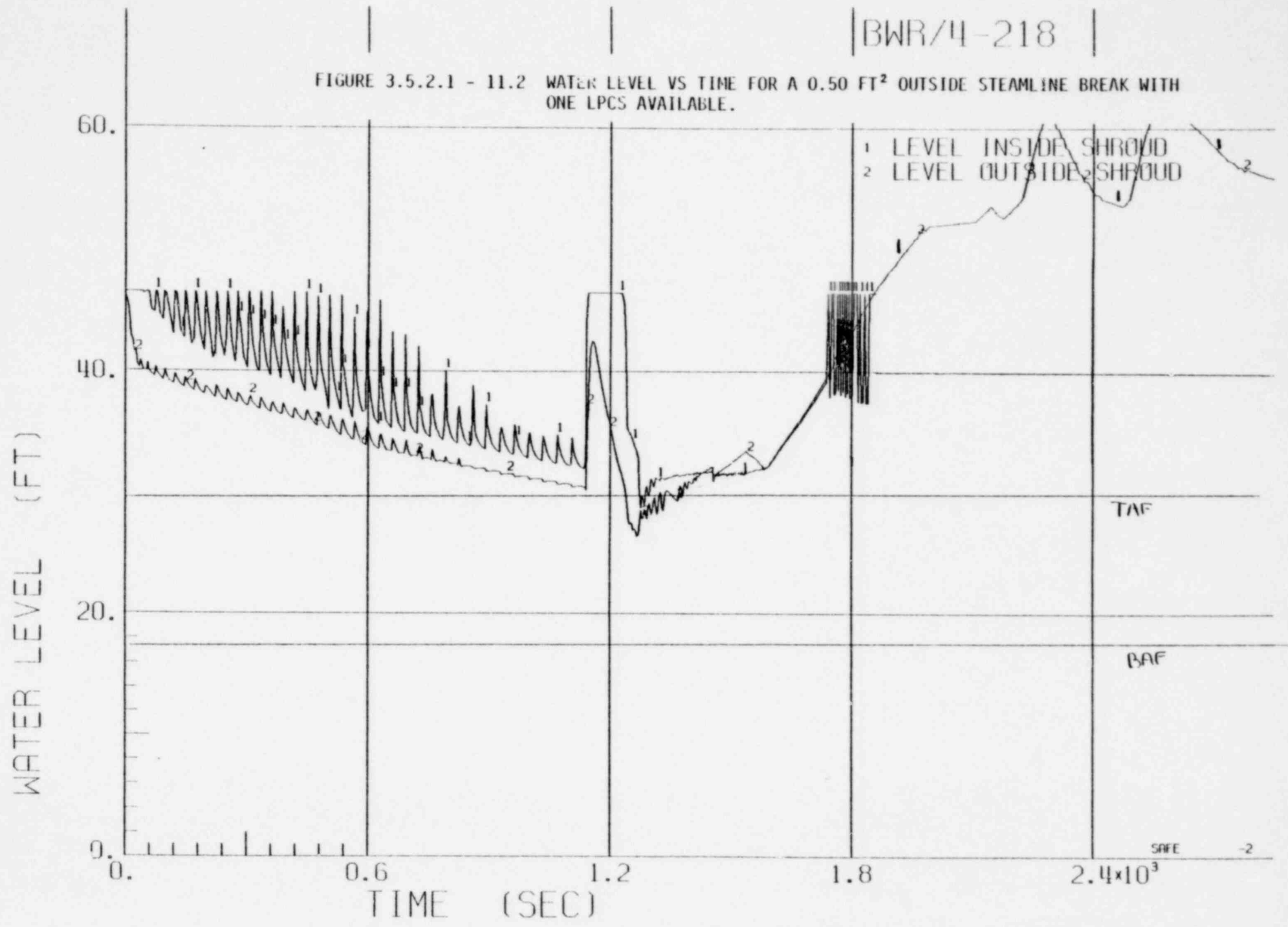
FIGURE 3.5.2.1 - 11.1 SYSTEM PRESSURE VS TIME FOR A 0.50 FT² OUTSIDE STEAMLINE BREAK WITH ONE LPCS AVAILABLE.



1549 085

BWR/4-218

FIGURE 3.5.2.1 - 11.2 WATER LEVEL VS TIME FOR A 0.50 FT² OUTSIDE STEAMLINE BREAK WITH ONE LPCS AVAILABLE.



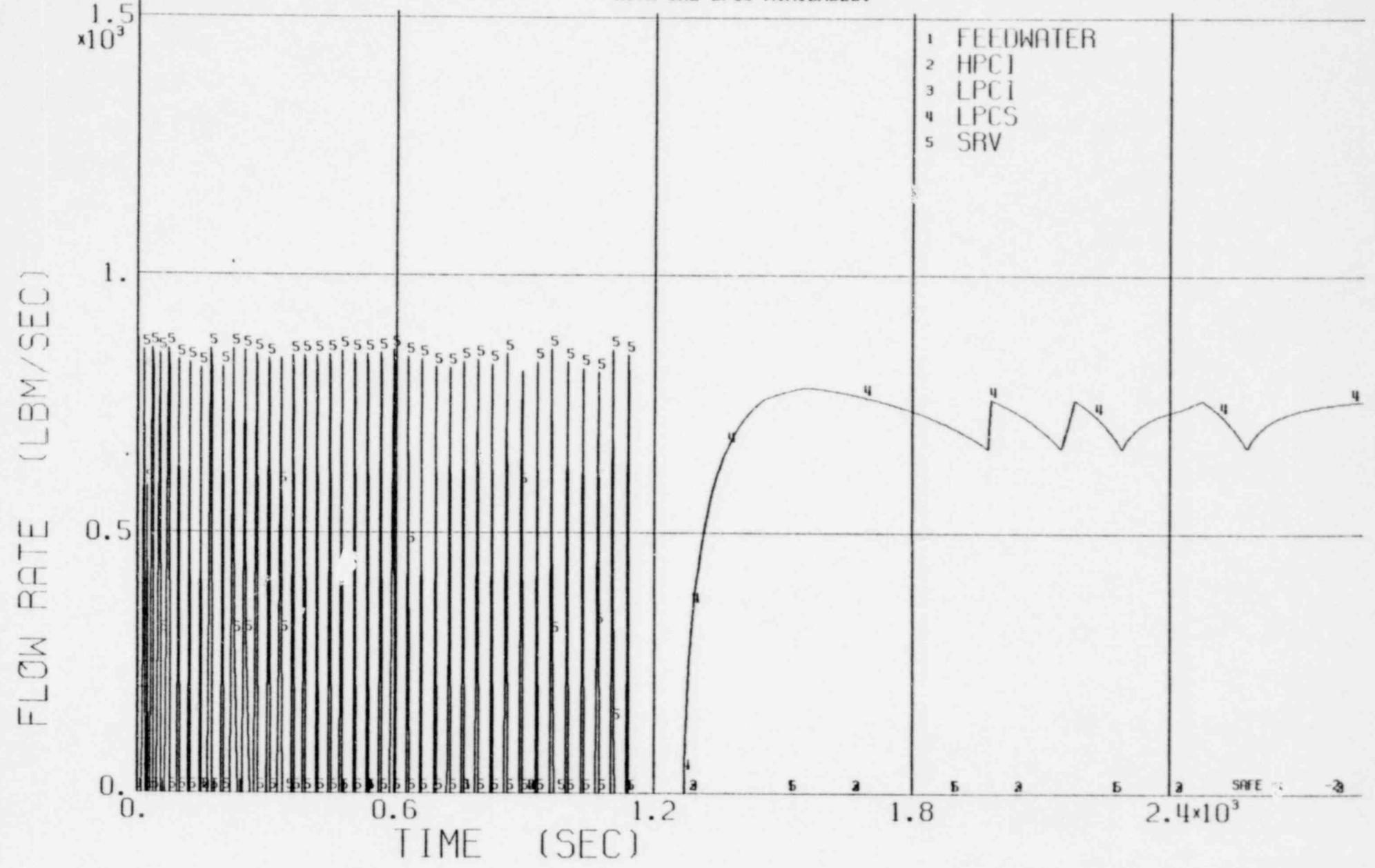
WATER LEVEL (FT)

TIME (SEC)

1549 086

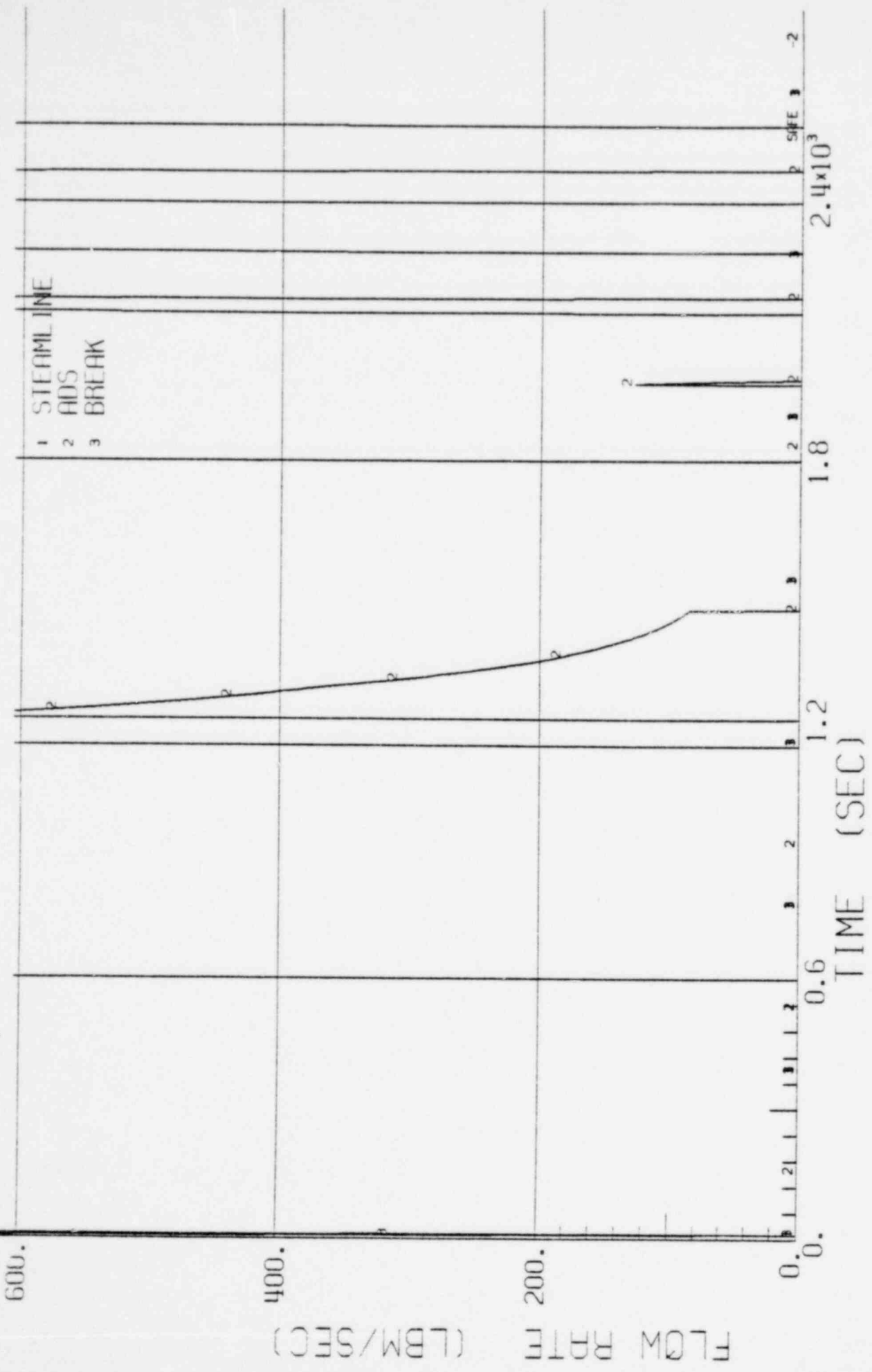
BWR/4-218

FIGURE 3.5.2.1 - 11.3 SYSTEM FLOW RATES VS TIME FOR A 0.50 FT² OUTSIDE STEAMLINE BREAK WITH ONE LPCS AVAILABLE.



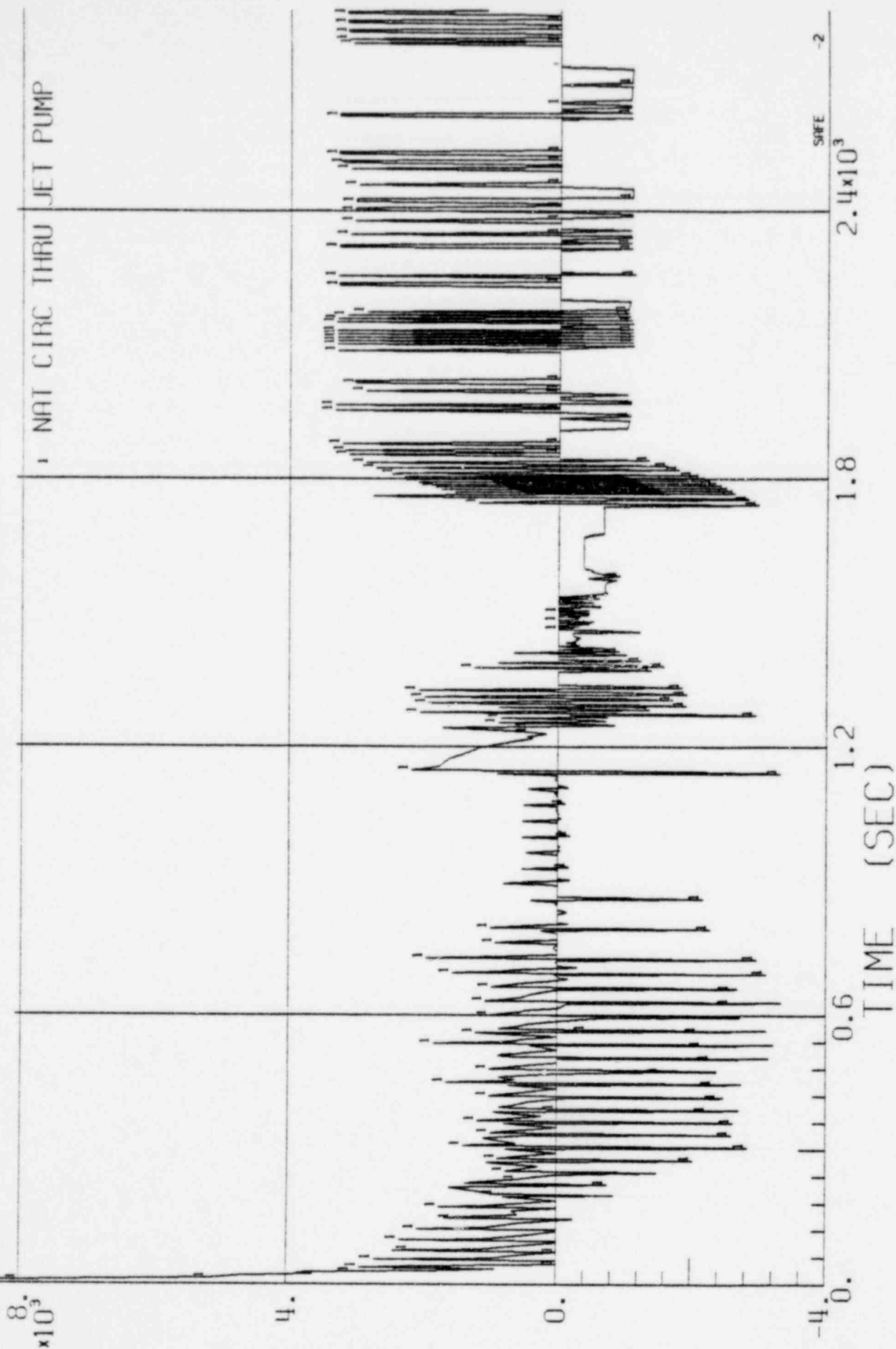
1549 087

FIGURE 3.5.2.1 - 11.4 FLOW RATES VS TIME FOR A 0.50 FT² OUTSIDE STEAMLINER BREAK WITH ONE LPCS AVAILABLE.



BWR/4-218

FIGURE 3.5.2.1 - 11.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.50 FT² OUTSIDE STEAMLINE BREAK WITH ONE LPCS AVAILABLE.

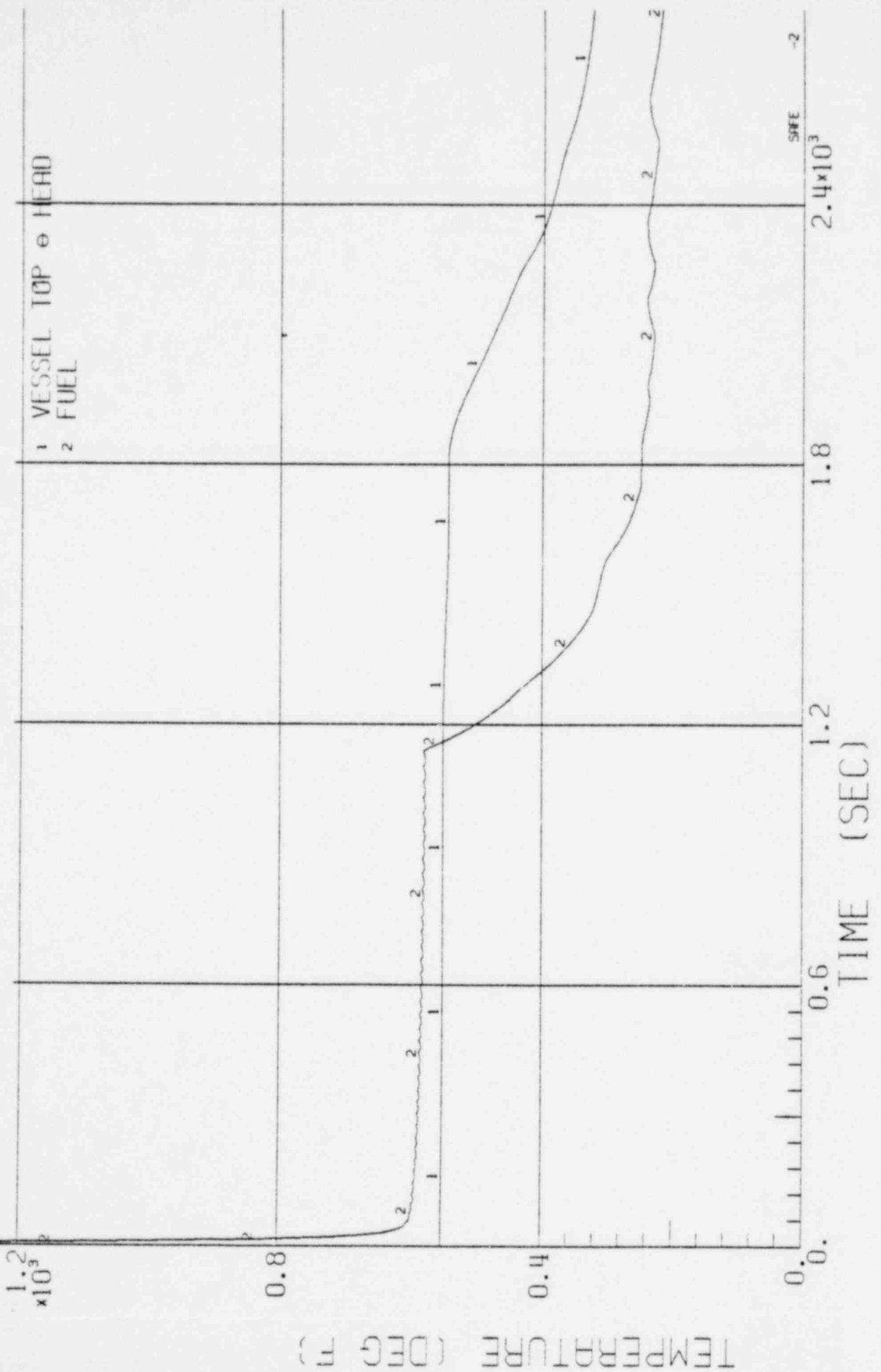


680 6451
FLOW RATE (LBM/SEC)

SAFE -2

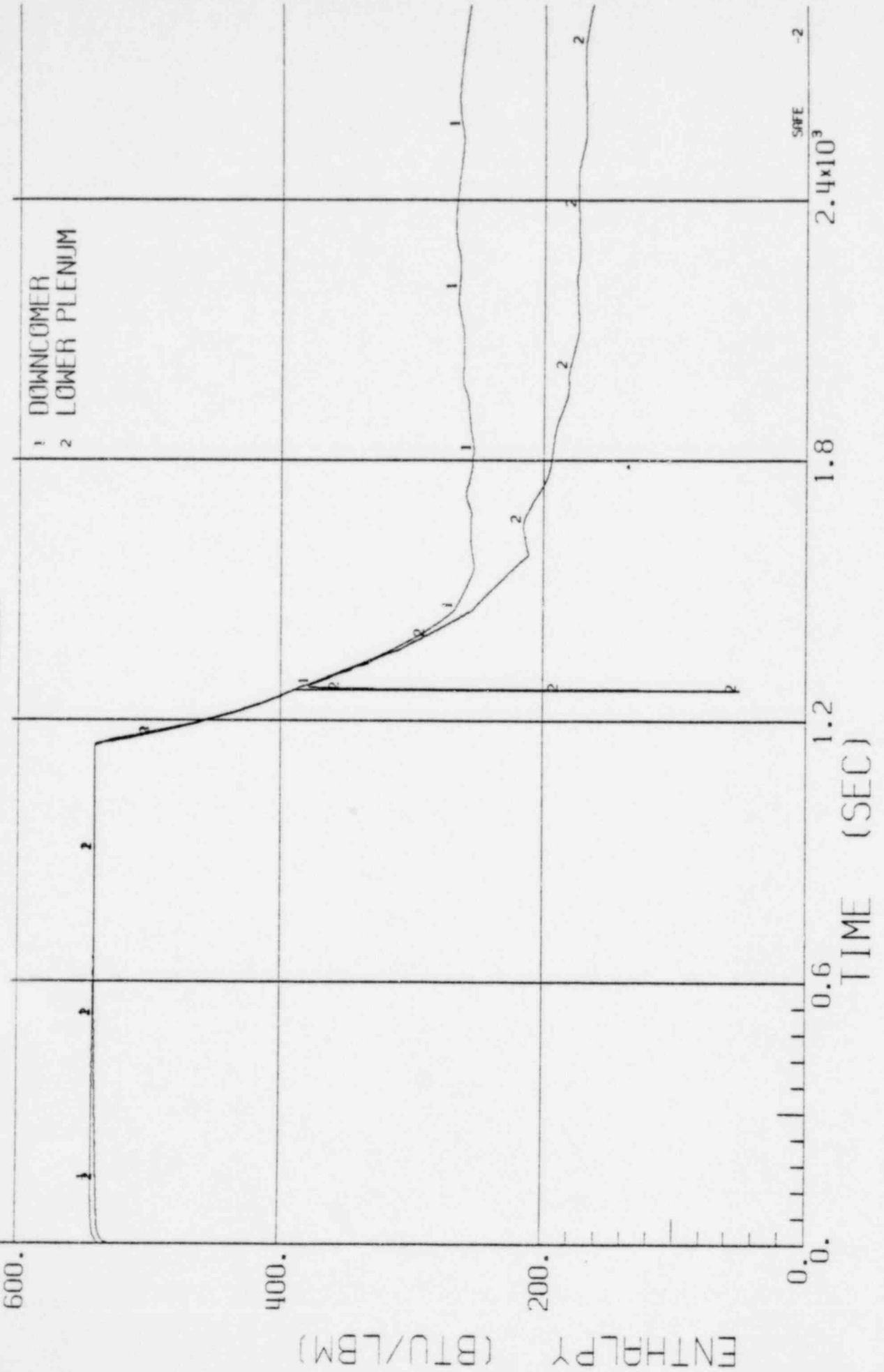
BWR/4-218

FIGURE 3.5.2.1 - 11.6 TEMPERATURE VS TIME FOR A 0.50 FT² OUTSIDE STEAMLINE BREAK WITH ONE LPCS AVAILABLE.



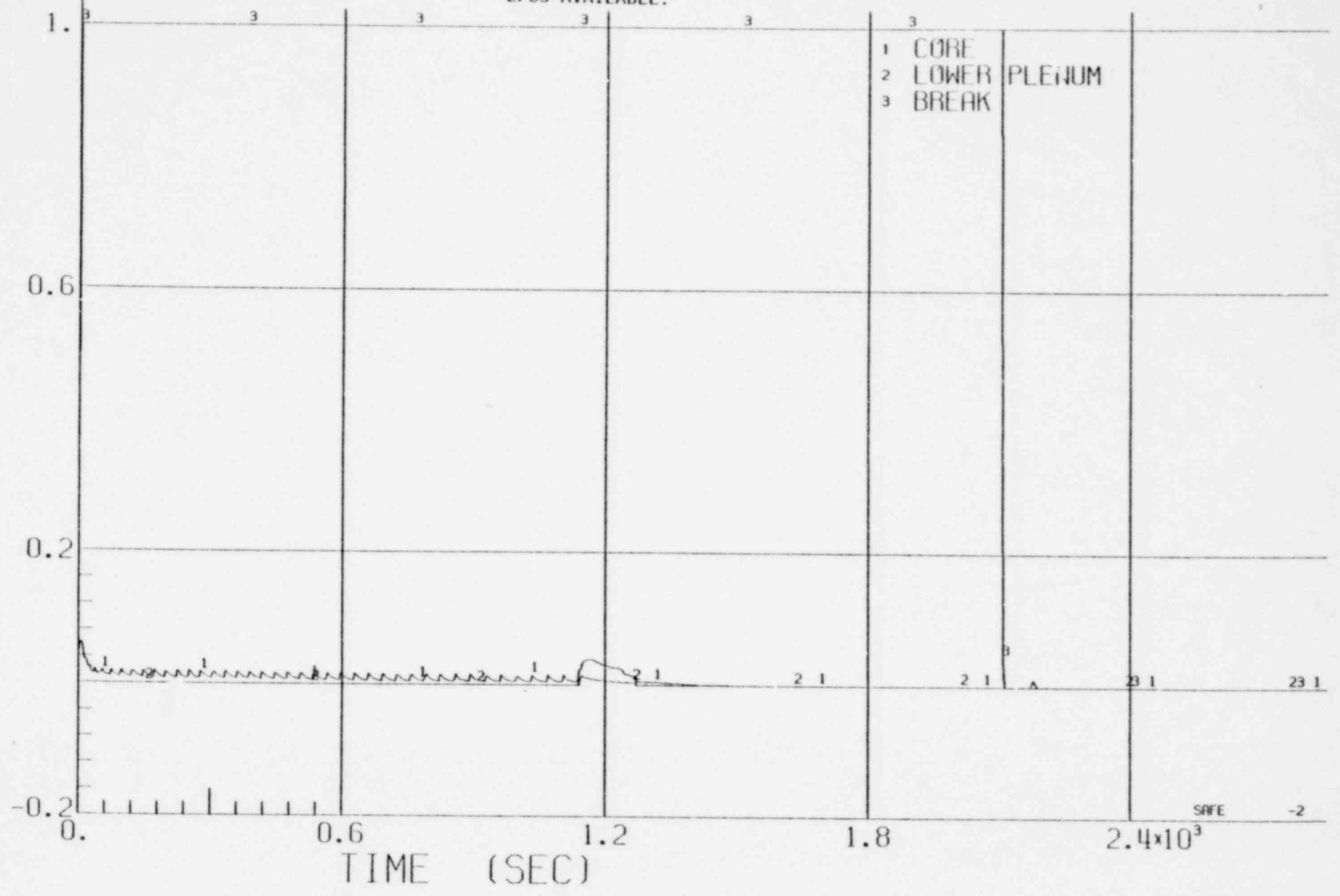
BWR/4-218

FIGURE 3.5.2.1 - 3.5.7 ENTHALPY VS TIME FOR A 0.10 FT² OUTSIDE STEAMLINE BREAK WITH ONE LPCS AVAILABLE.



BWR/4-218

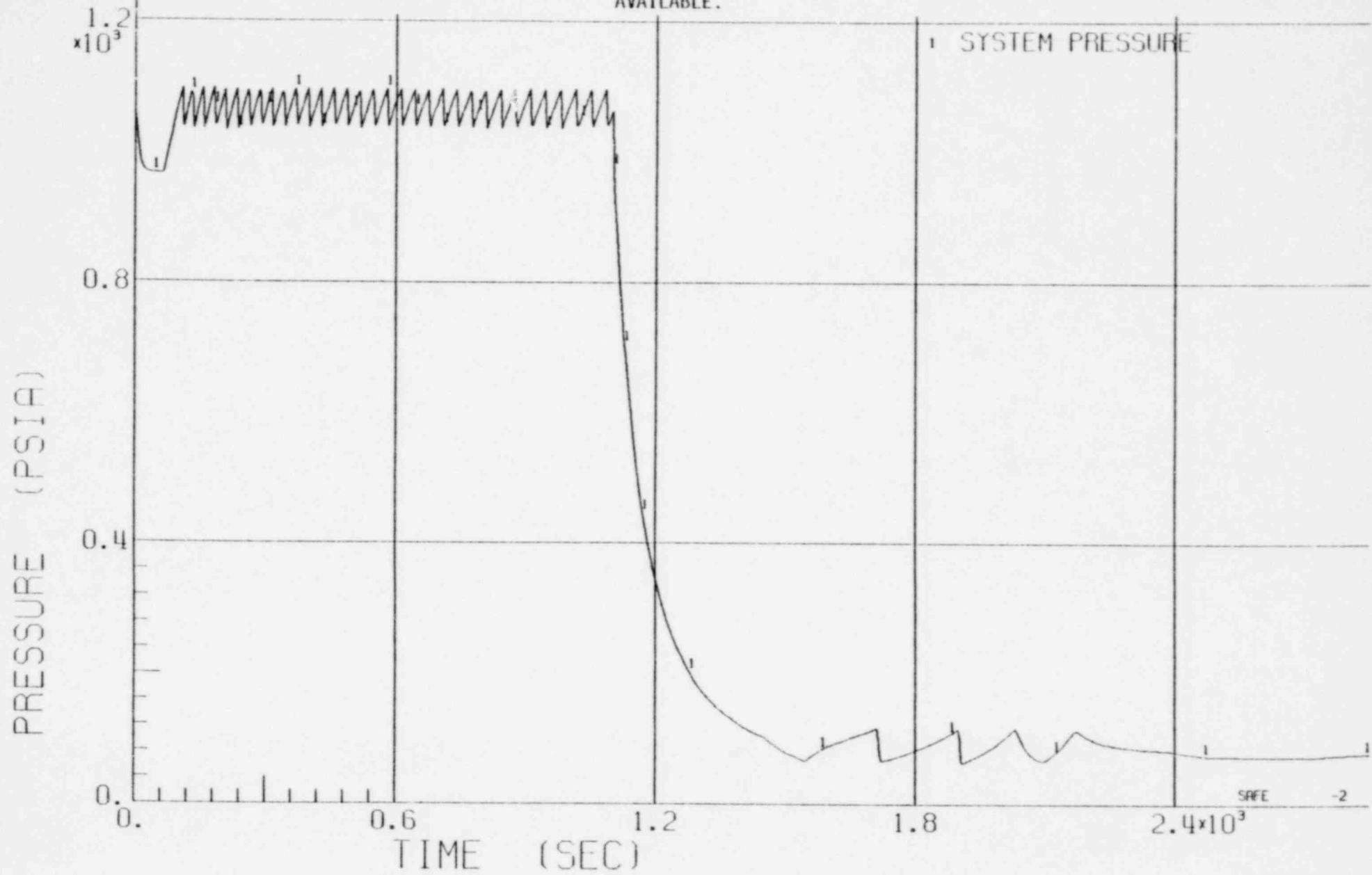
FIGURE 3.5.2.1 - 11.8 QUALITY VS TIME FOR A 0.50 FT² OUTSIDE STEAMLINE BREAK WITH ONE LPCS AVAILABLE.



1549 092
QUALITY

BWR/4-218

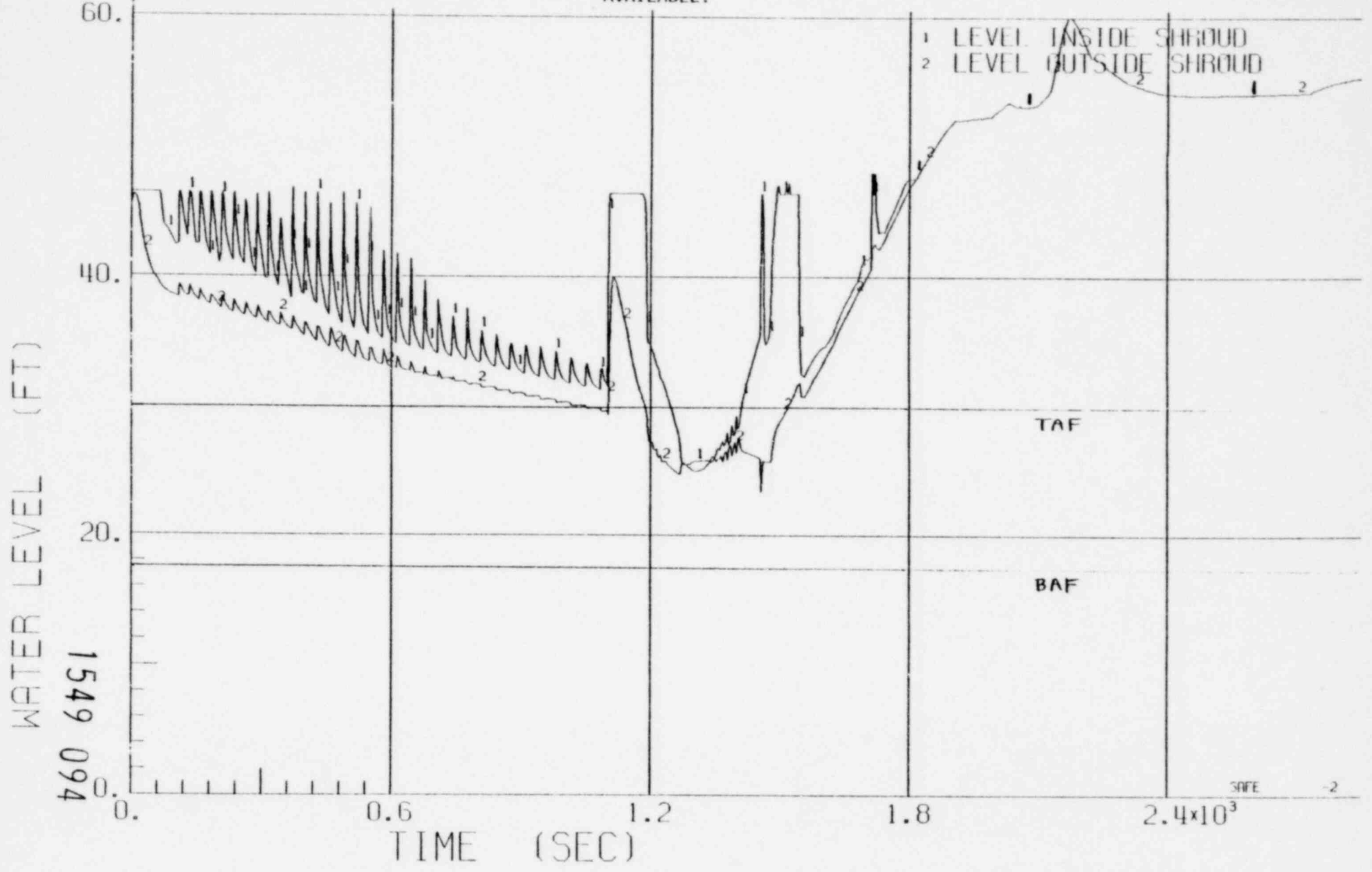
FIGURE 3.5.2.1 - 12.1 SYSTEM PRESSURE VS TIME FOR A 0.001 FT² SUCTION BREAK WITH ONE LPCI AVAILABLE.



1549 097

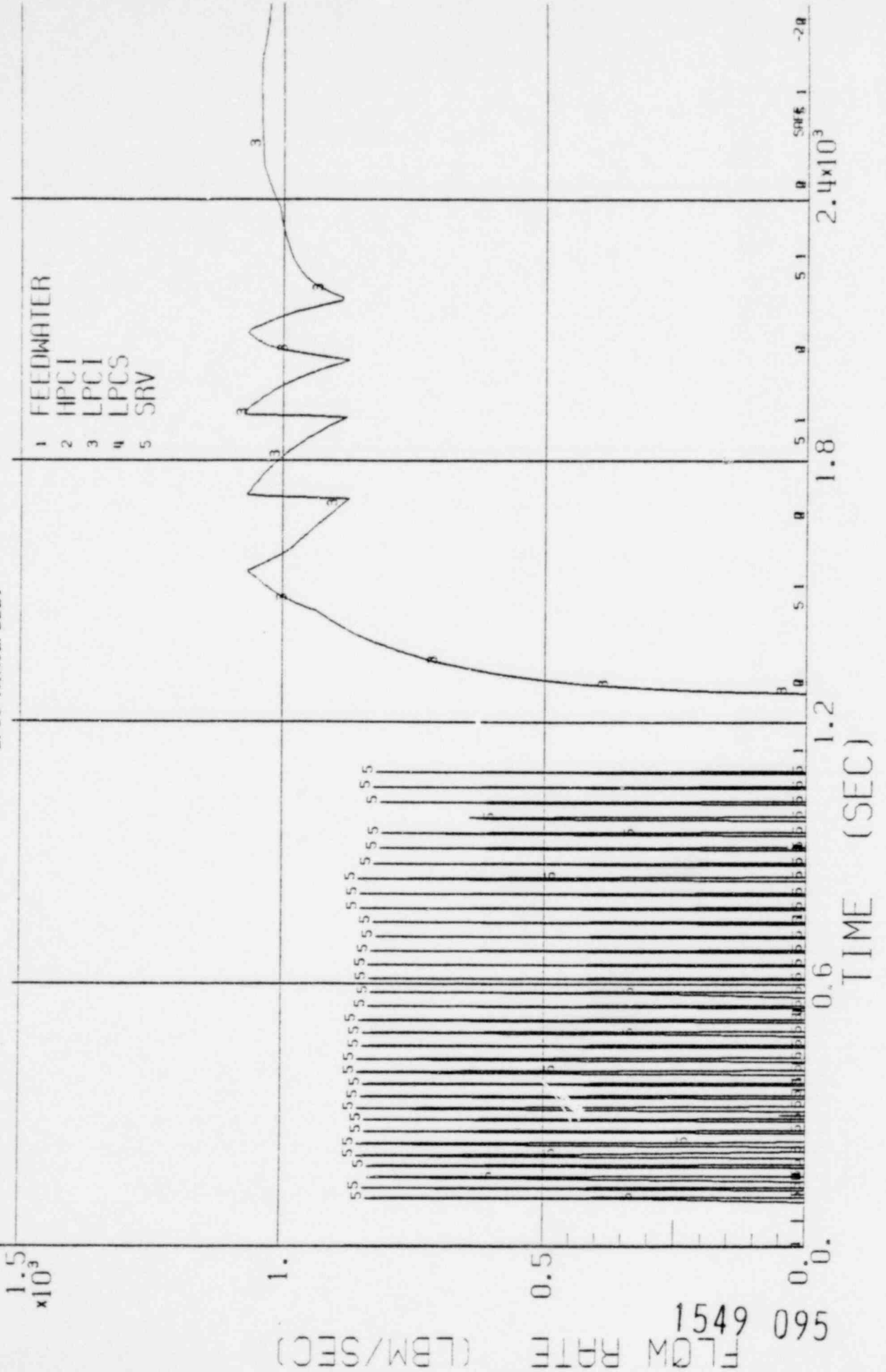
BWR/4-218

FIGURE 3.5.2.1 - 12.2 WATER LEVEL VS TIME FOR A 0.001 FT² SUCTION BREAK WITH ONE LPCI AVAILABLE.



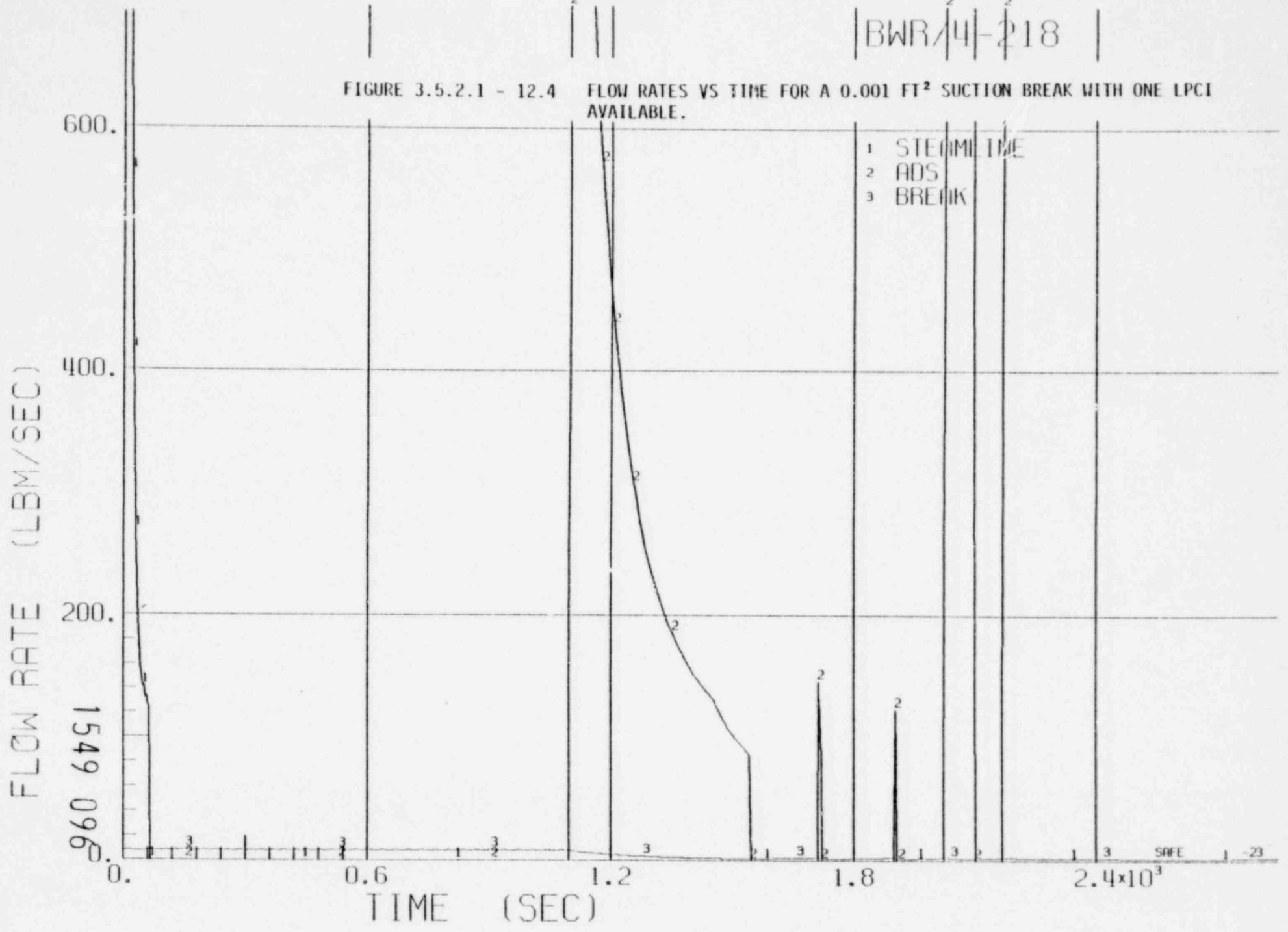
BWR/4-218

FIGURE 3.5.2.1 - 12.3 SYSTEM FLOW RATES VS TIME FOR A 0.001 FT² SUCTION BREAK WITH ONE LPCI AVAILABLE.



BWR/4-218

FIGURE 3.5.2.1 - 12.4 FLOW RATES VS TIME FOR A 0.001 FT² SUCTION BREAK WITH ONE LPCI AVAILABLE.



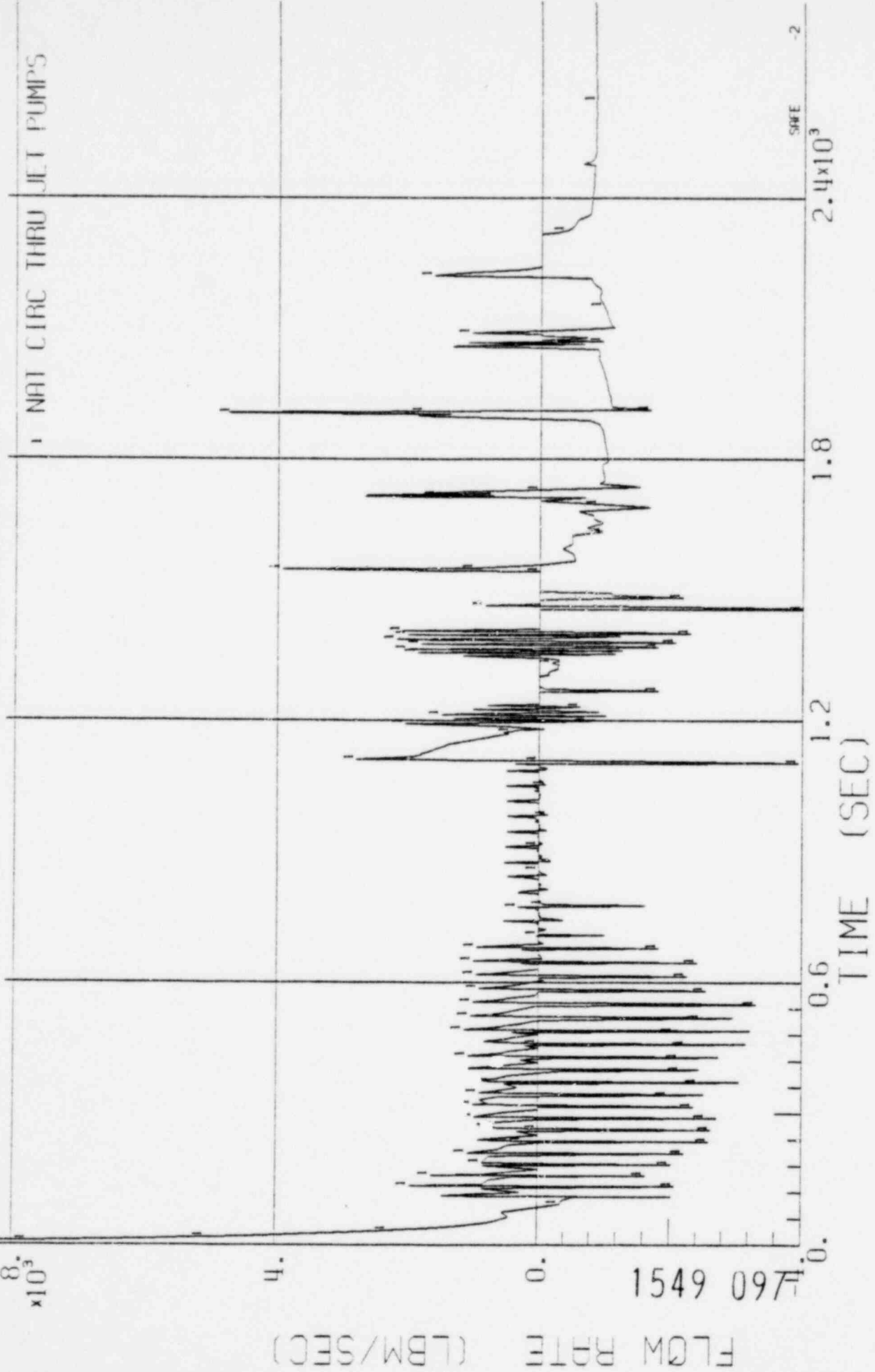
FLOW RATE (LBM/SEC)

1549 096

TIME (SEC)

BWR/11-218

FIGURE 3.5.2.1 - 12.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.001 FT² SUCTION BREAK WITH ONE LPCI AVAILABLE.



SWE -2

2.4x10³

1.8

1.2

0.6

0.

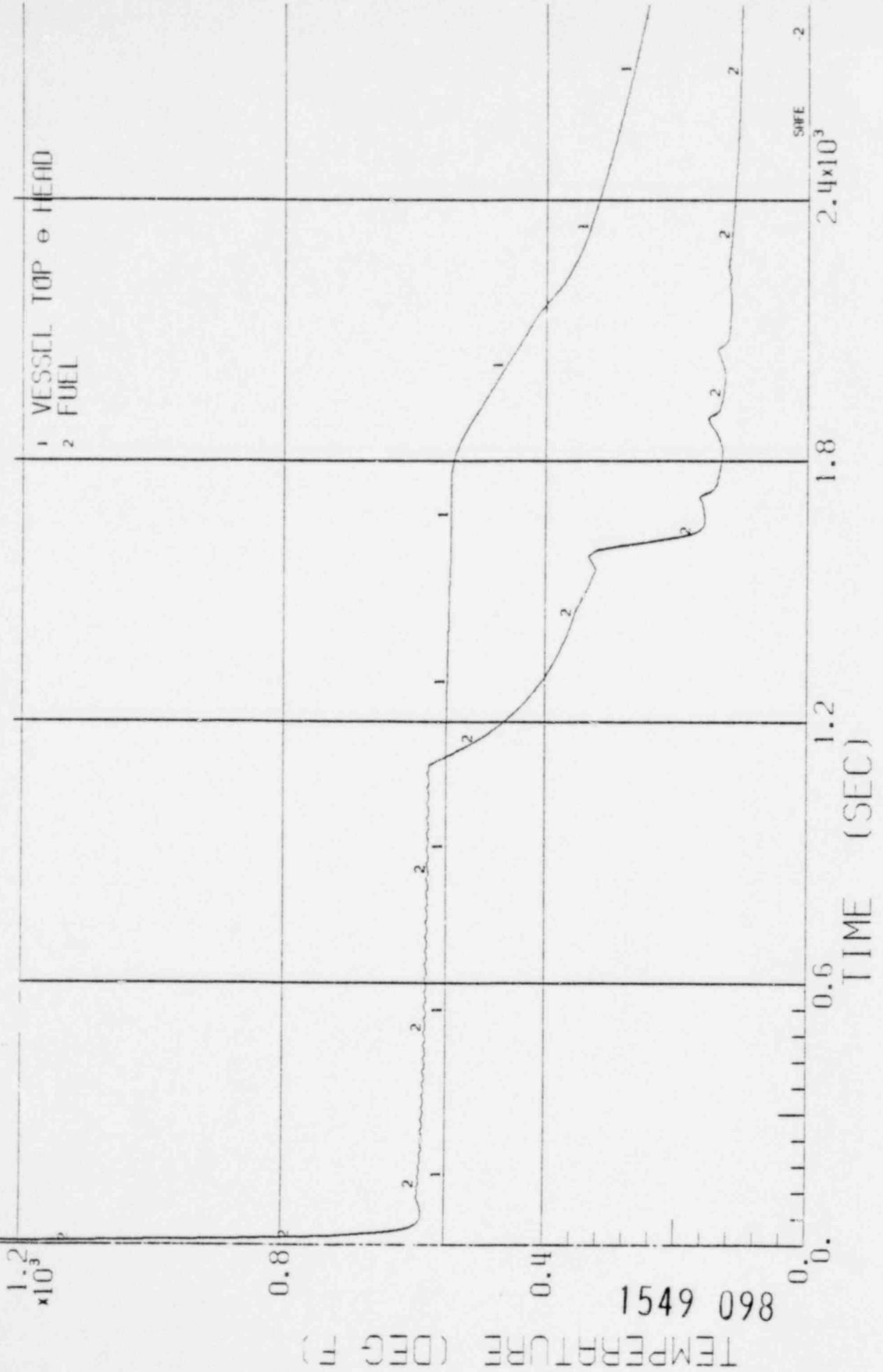
TIME (SEC)

FLOW RATE (LBM/SEC)

1549 097

BWR/4-218

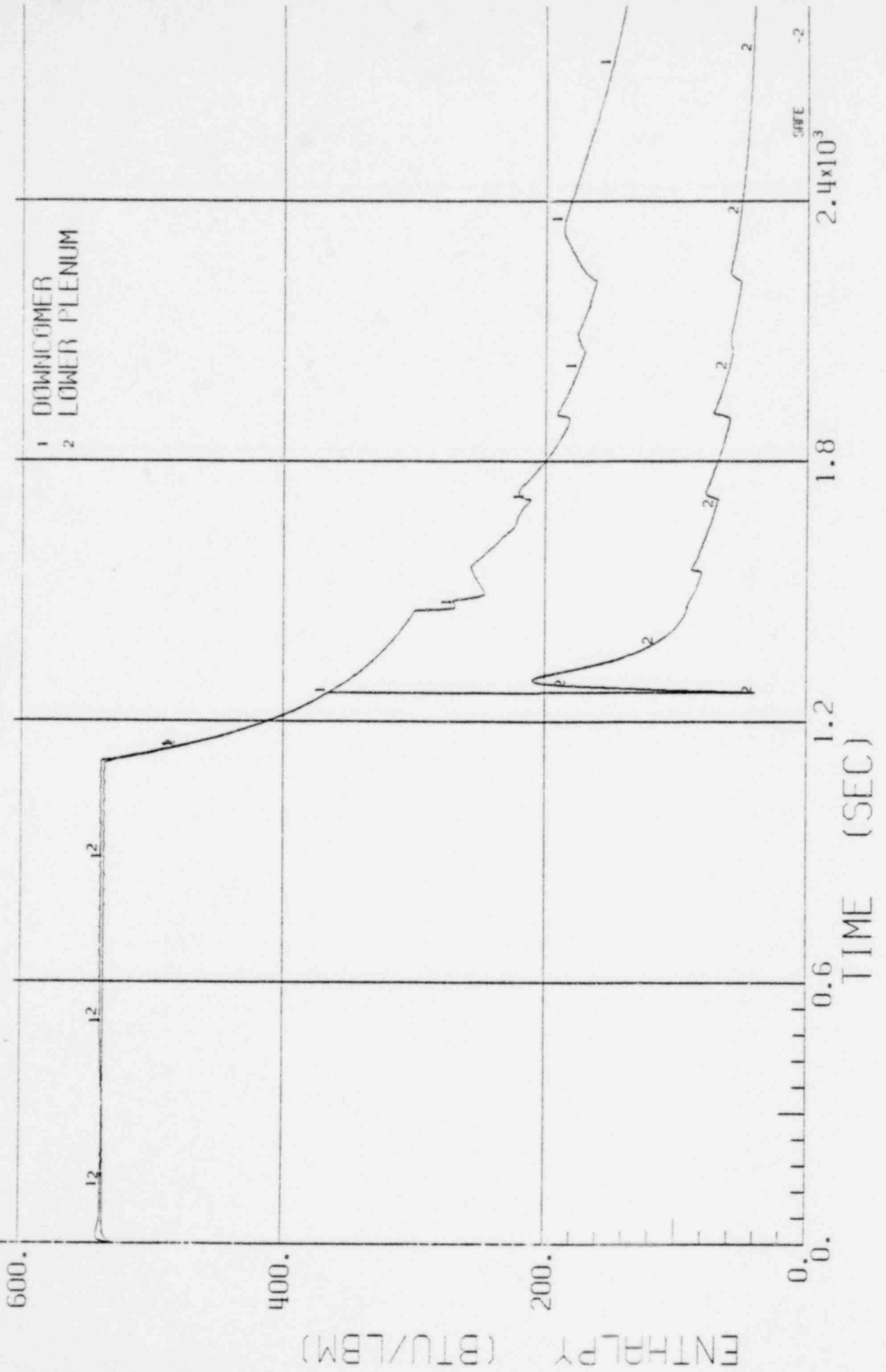
FIGURE 3.5.2.1 - 12.6 TEMPERATURE VS TIME FOR A 0.001 FT² SUCTION BREAK WITH ONE LPCI AVAILABLE.



1549 098

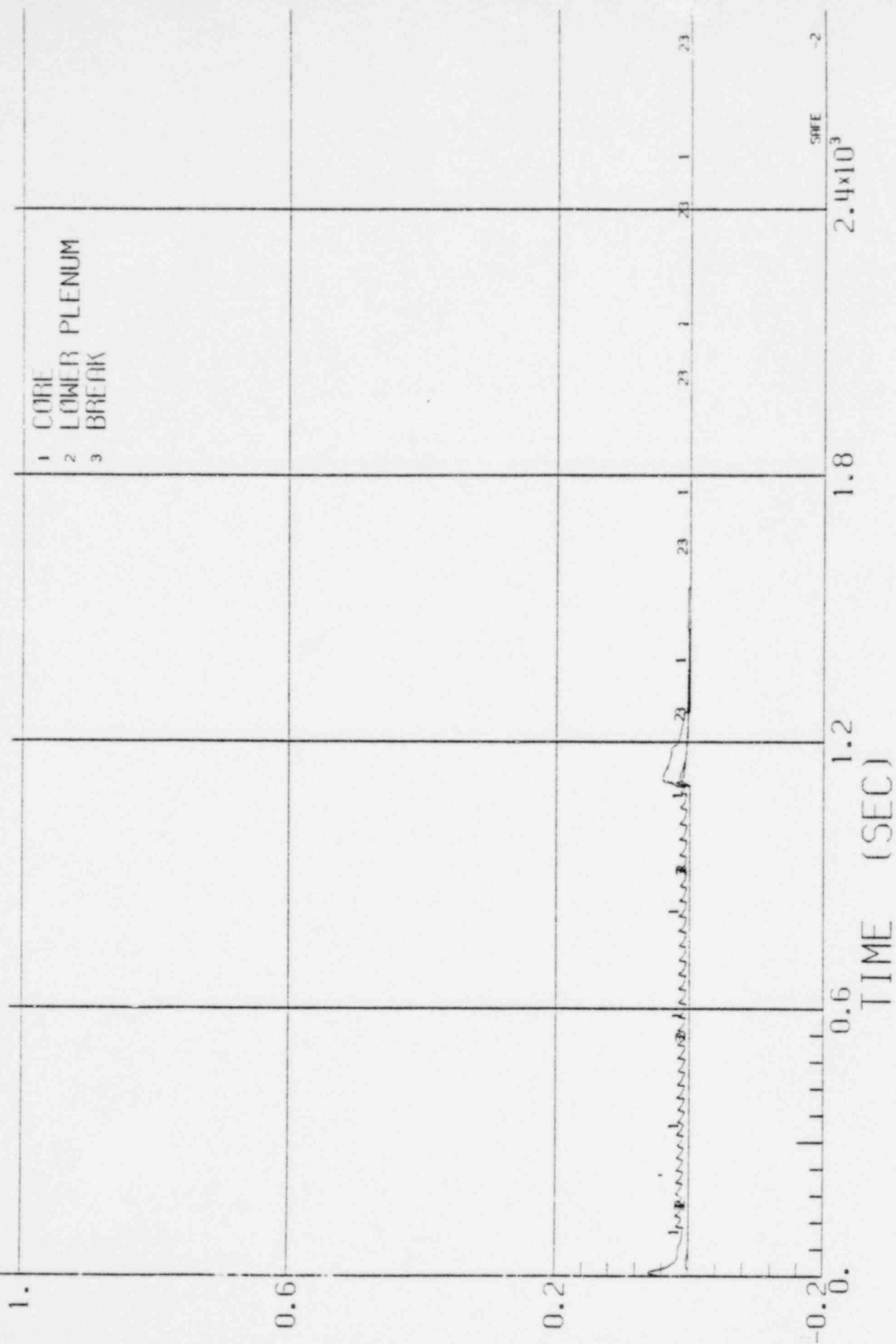
BWR/4-218

FIGURE 3.5.2.1 - 12.7 ENTHALPY VS TIME FOR A 0.001 FT² SUCTION BREAK WITH ONE LPCI AVAILABLE.



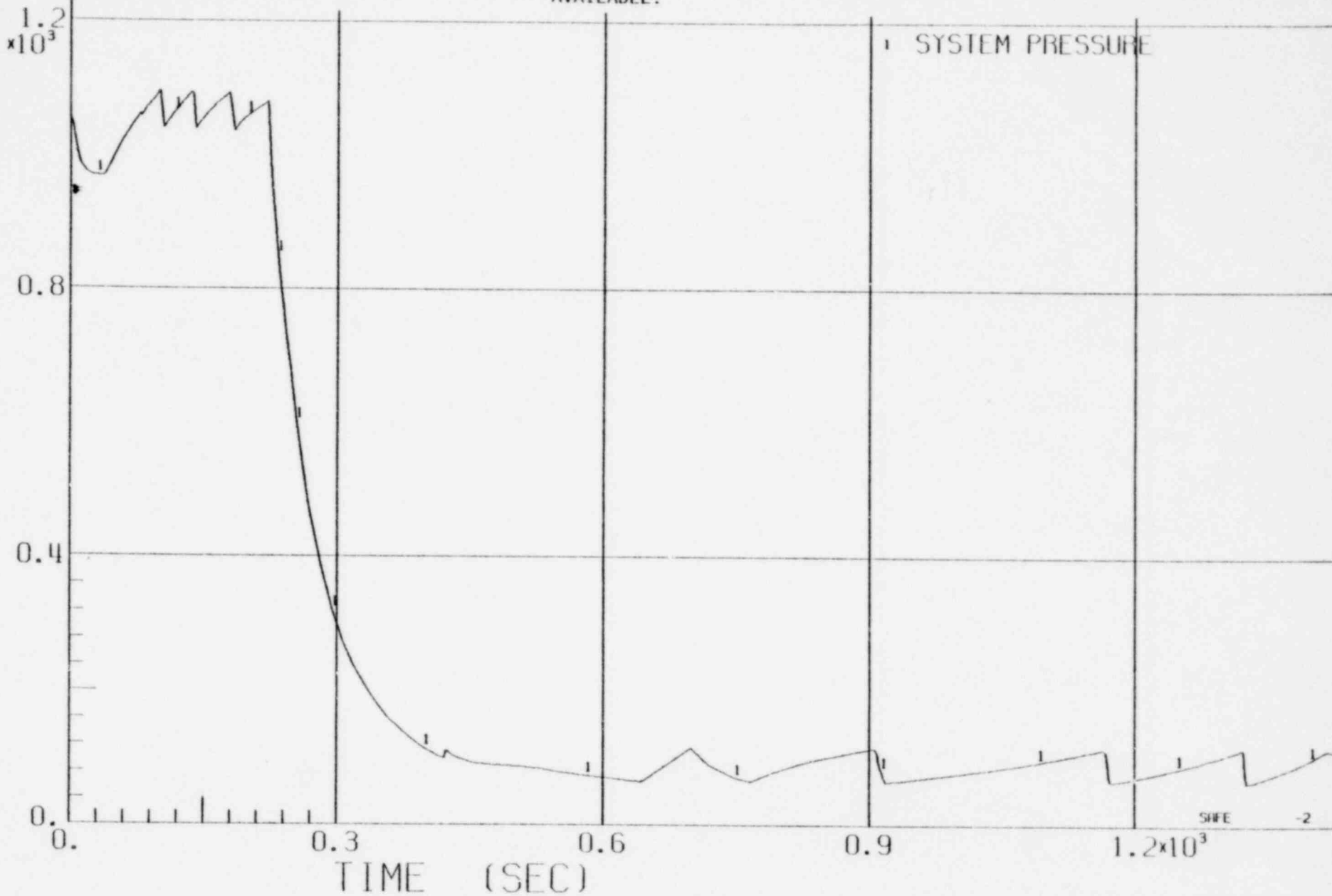
BWR/4-218

FIGURE 3.5.2.1 - 12.8 QUALITY VS TIME FOR A 0.001 FT² SUCTION BREAK WITH ONE LPCI AVAILABLE.



BWR/4-218

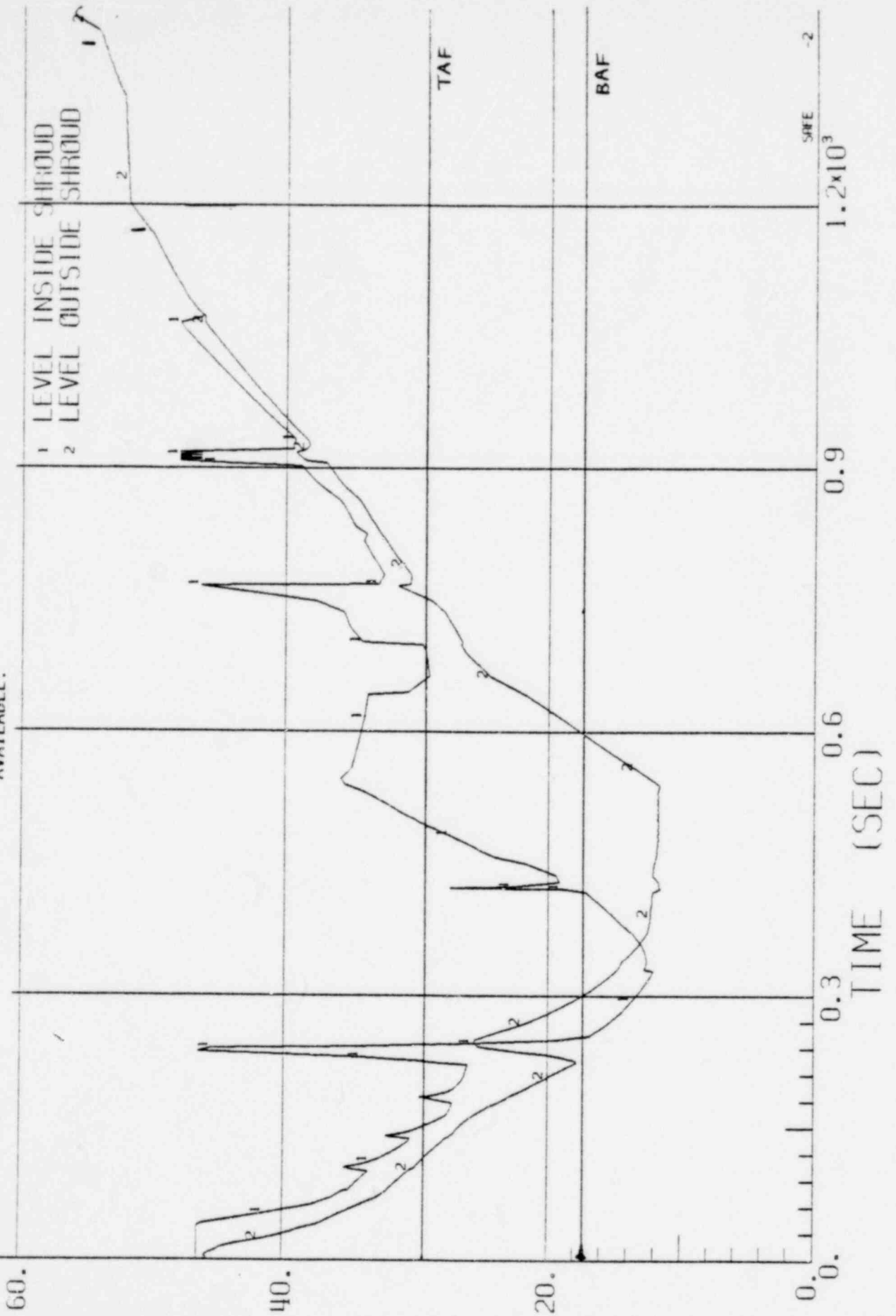
FIGURE 3.5.2.1 - 13.1 SYSTEM PRESSURE VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AVAILABLE.



1549 101
PRESSURE (PSIA)

BWR/4-218

FIGURE 3.5.2.1 - 13.2 WATER LEVEL VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AVAILABLE.

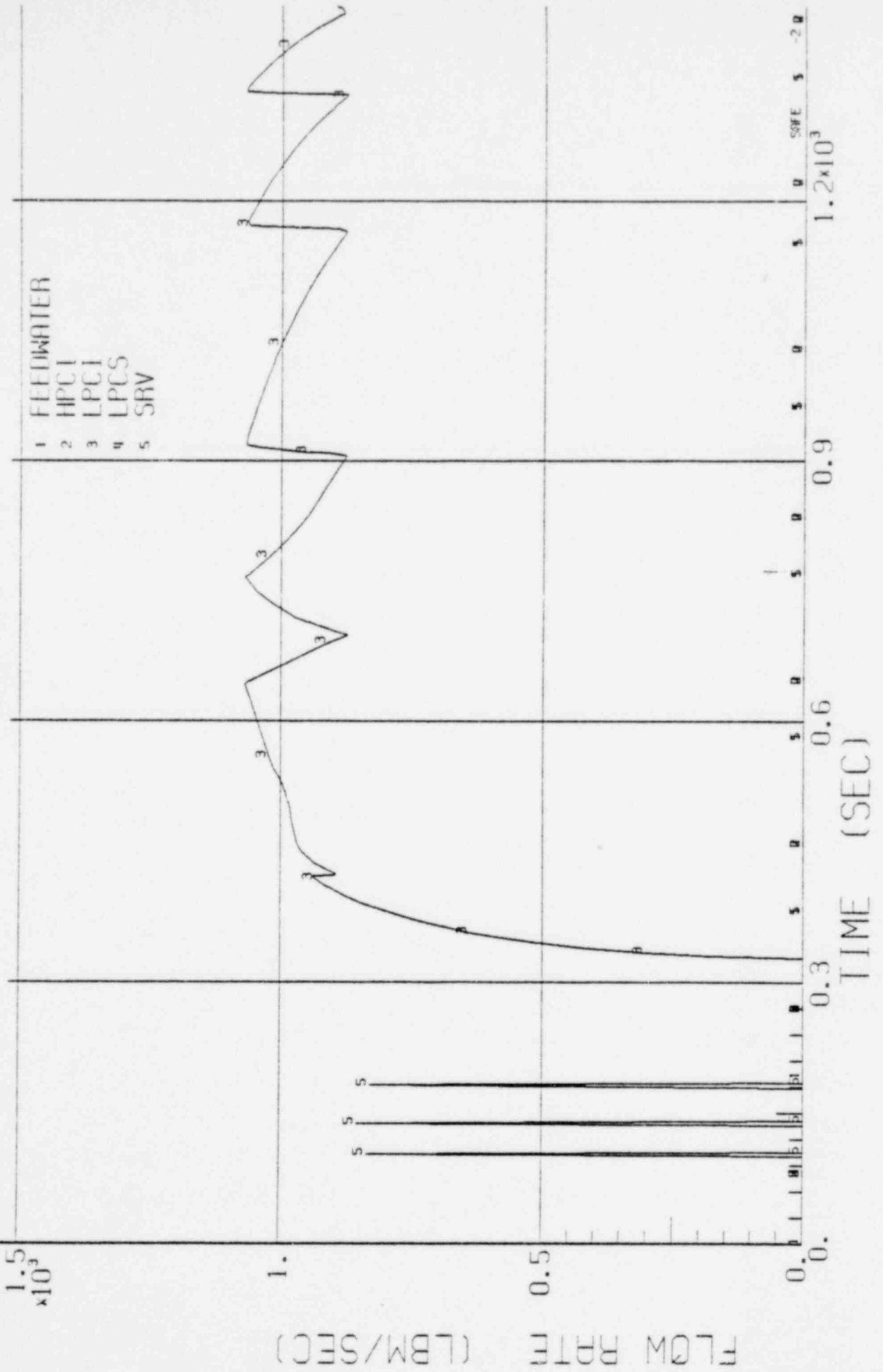


WATER LEVEL (FT)

SAFE -2

BWR/4-218

FIGURE 3.5.2.1 - 13.3 SYSTEM FLOW RATES VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AVAILABLE.

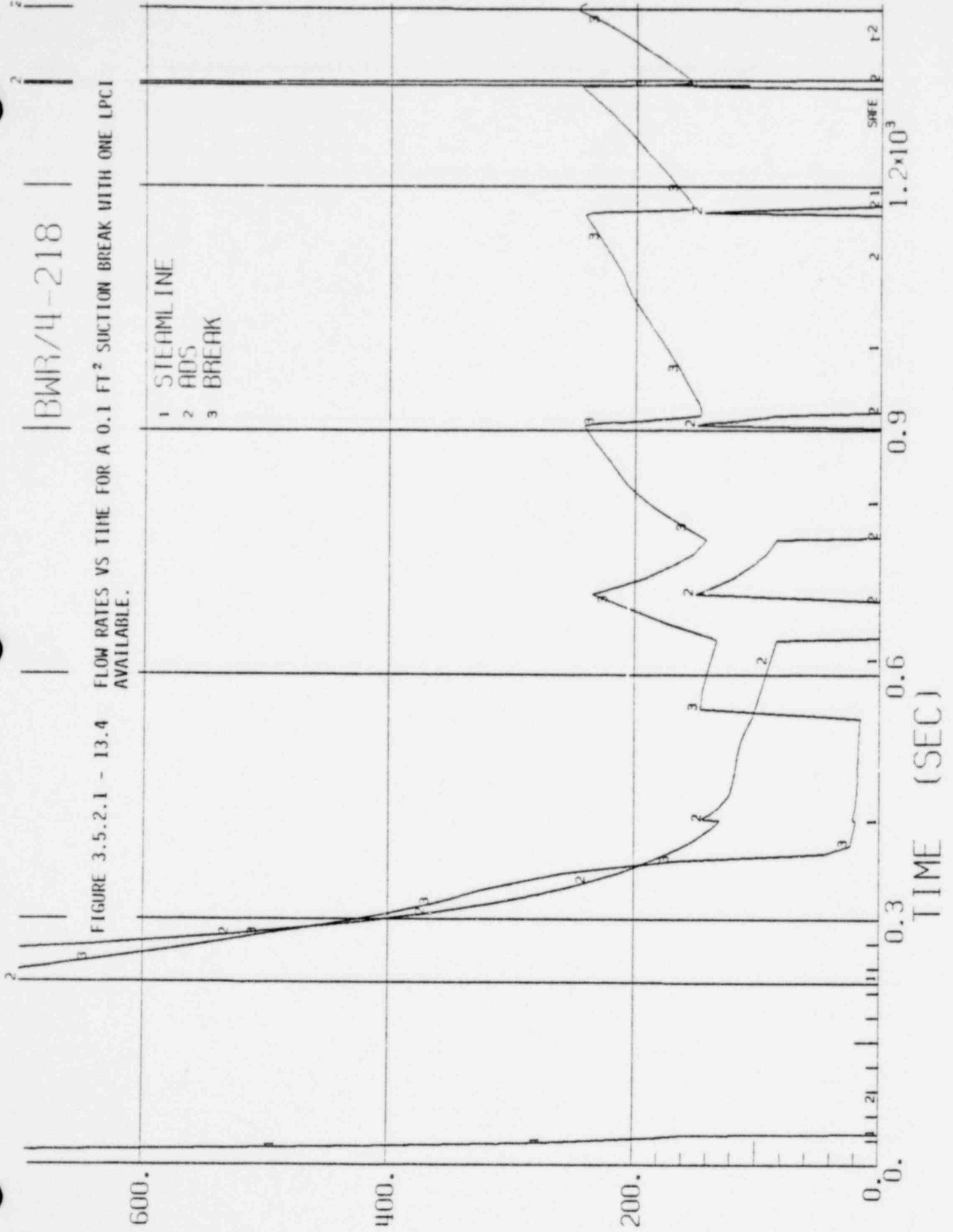


BWR/4-218

FIGURE 3.5.2.1 - 13.4 FLOW RATES VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AVAILABLE.

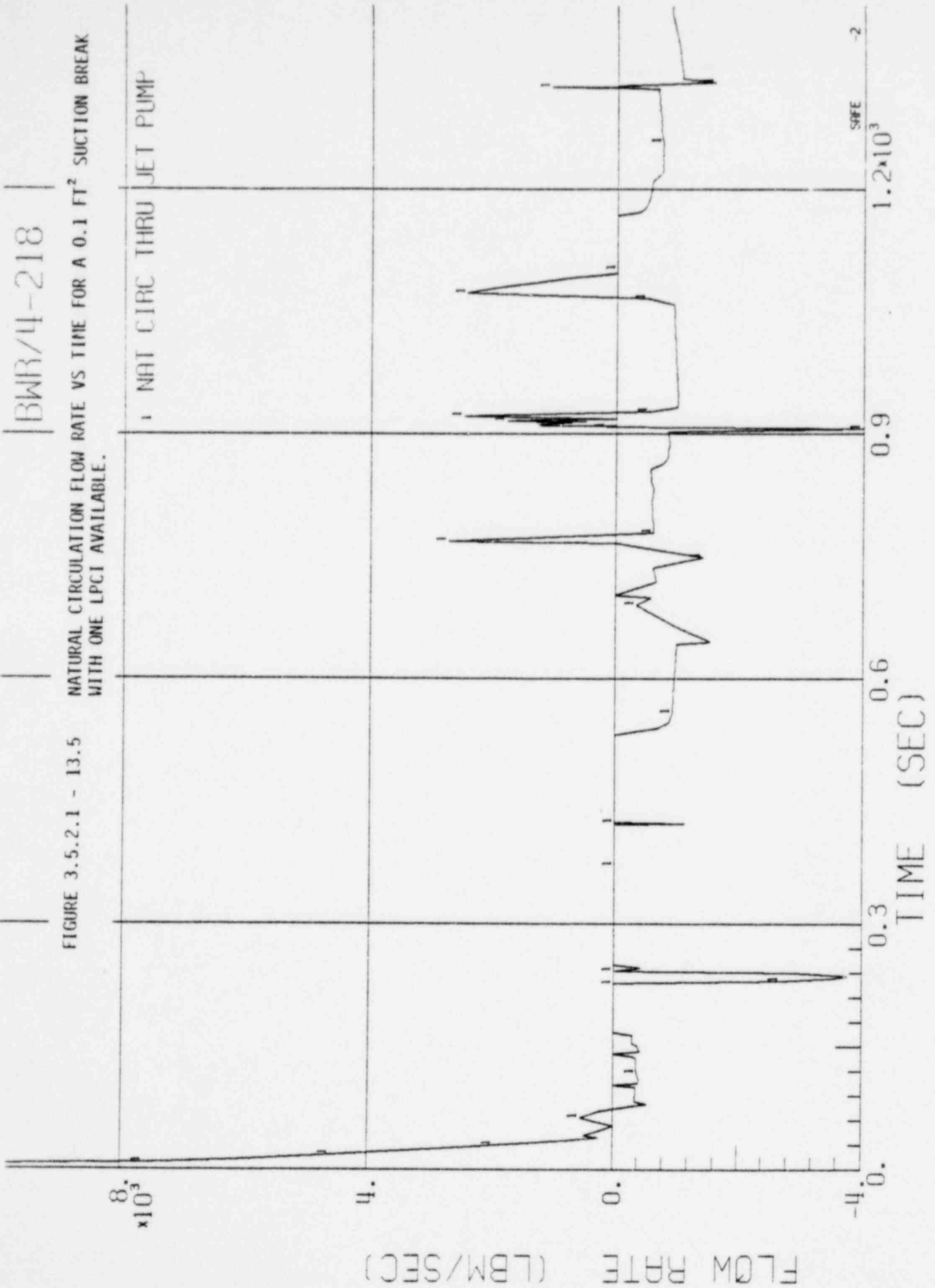
1 STEAMLINE
2 ADS
3 BREAK

FLOW RATE (LBM/SEC)



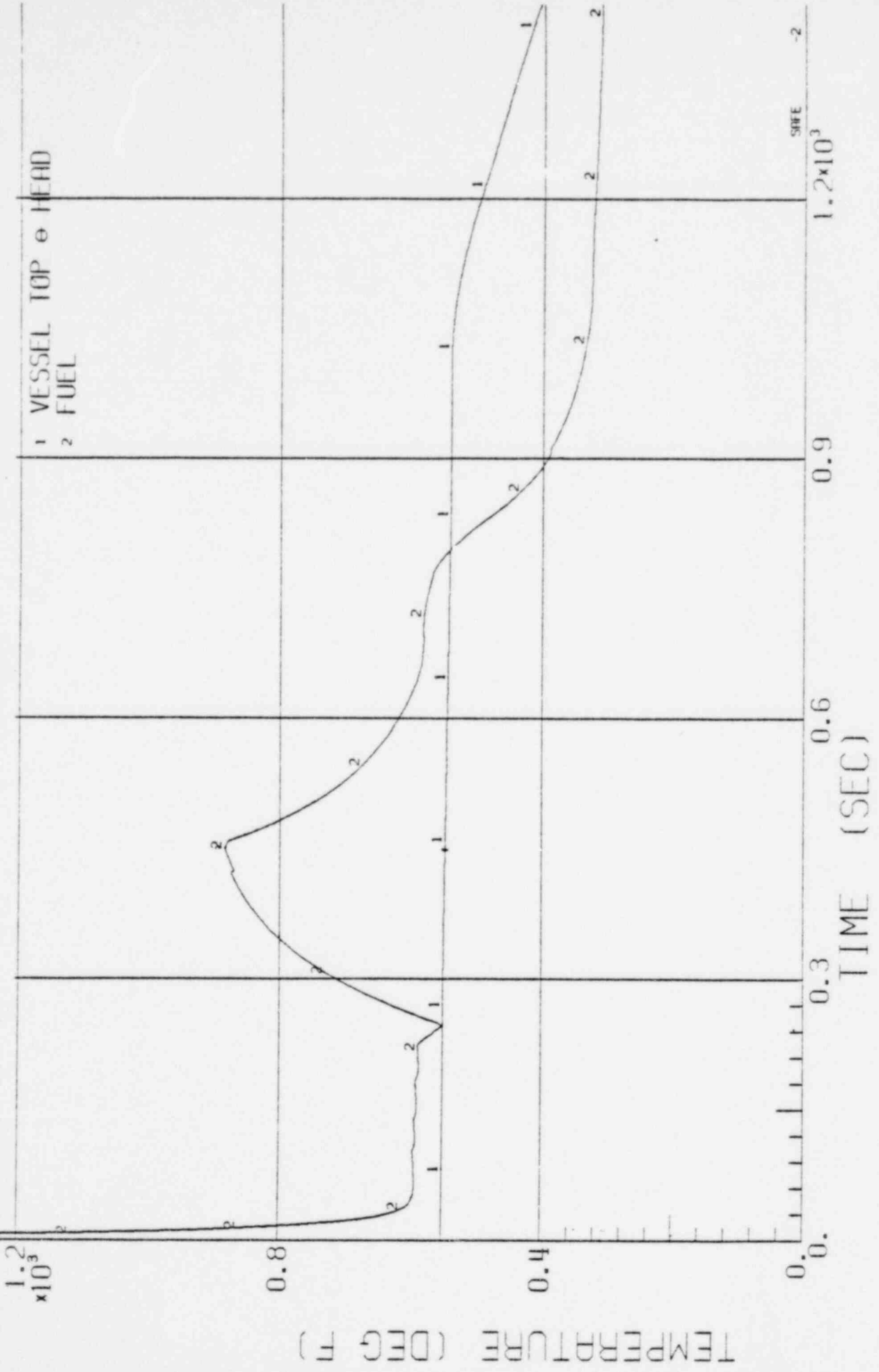
BWR/4-218

FIGURE 3.5.2.1 - 13.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AVAILABLE.



BWR/4-218

FIGURE 3.5.2.1 - 13.6 TEMPERATURE VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AVAILABLE.

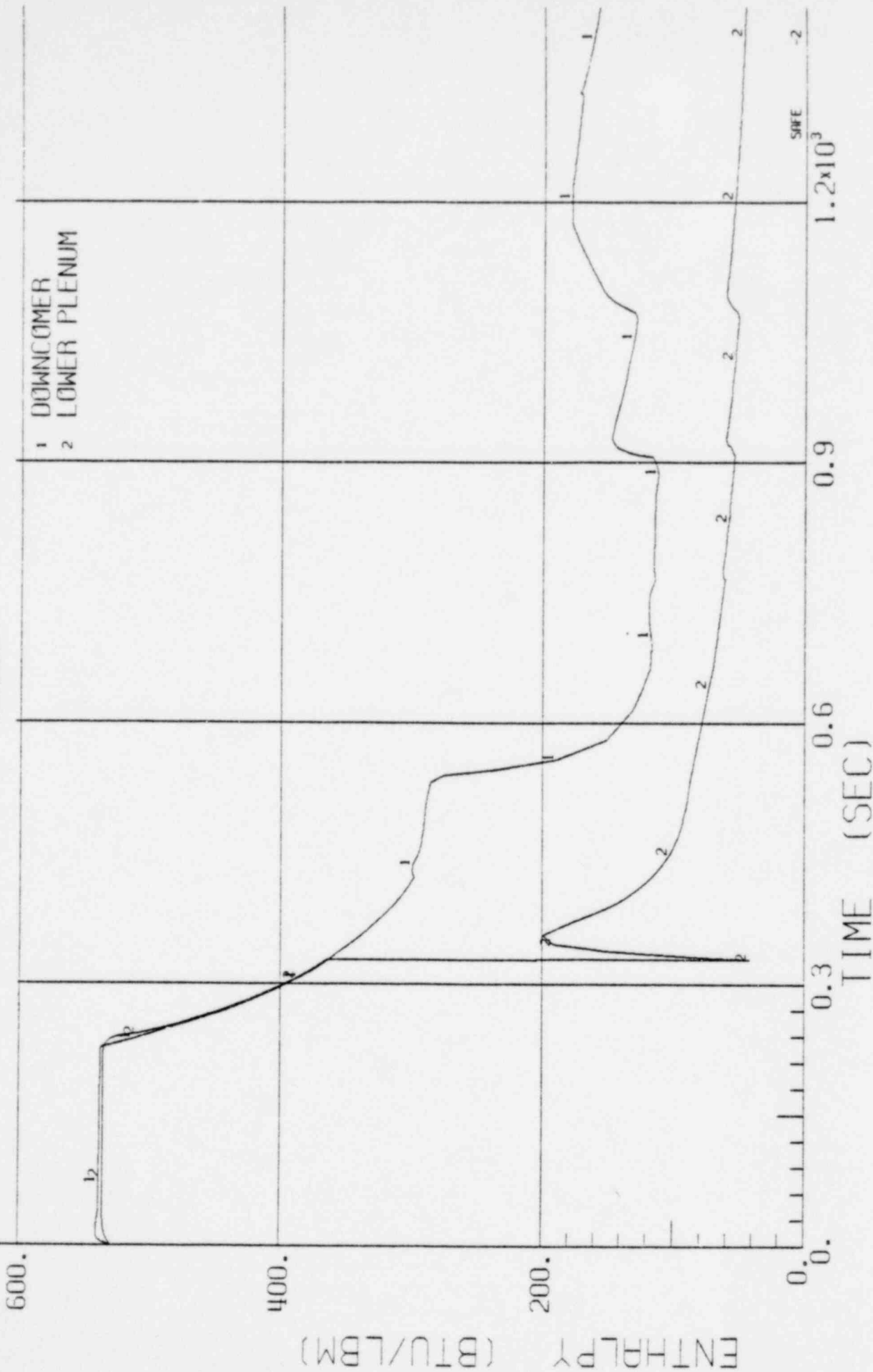


TEMPERATURE (DEG F)

SAFE -2

BWR/4-218

FIGURE 3.5.2.1 - 13.7 ENTHALPY VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AVAILABLE.

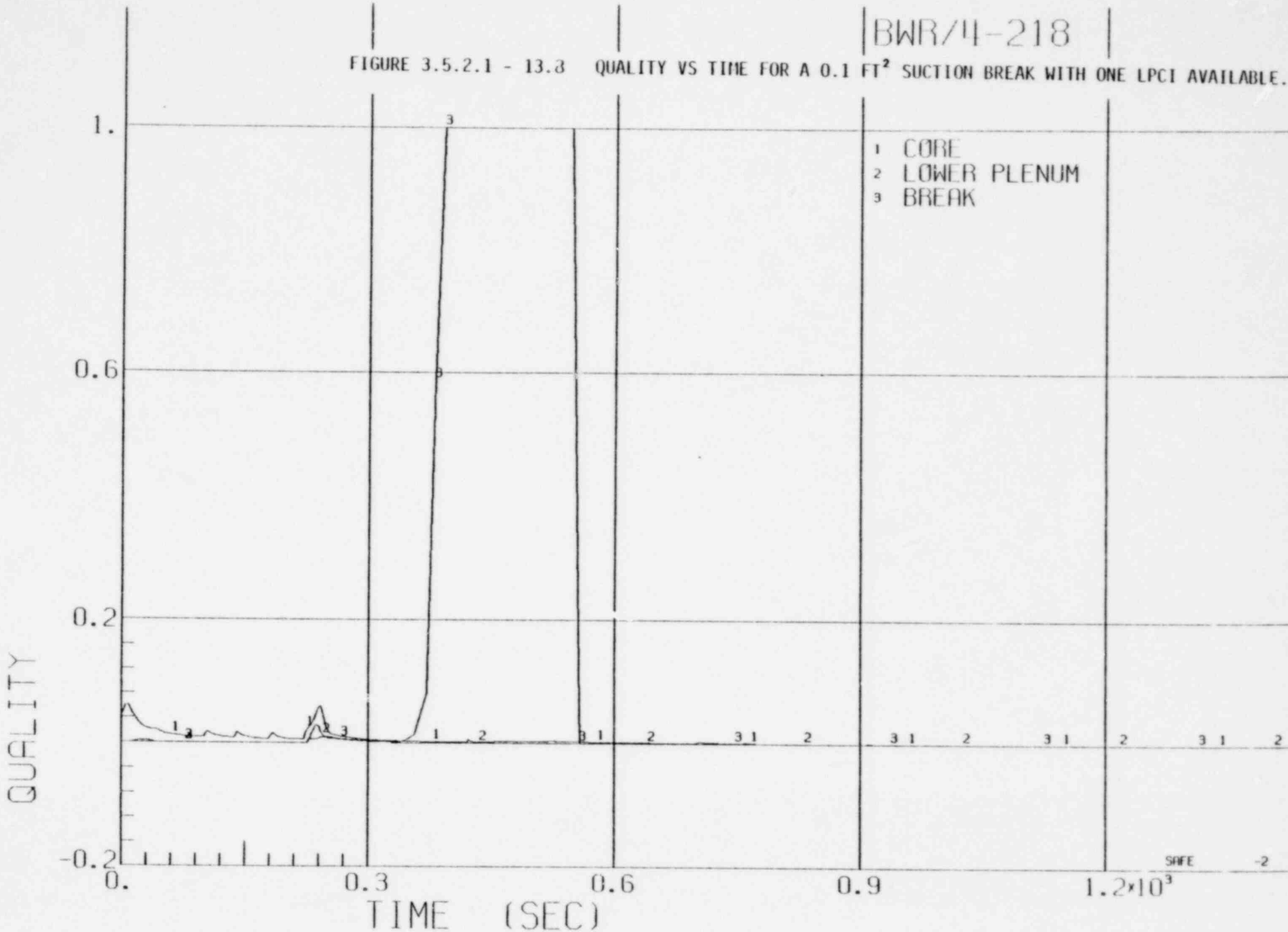


1549 107

1

BWR/4-218

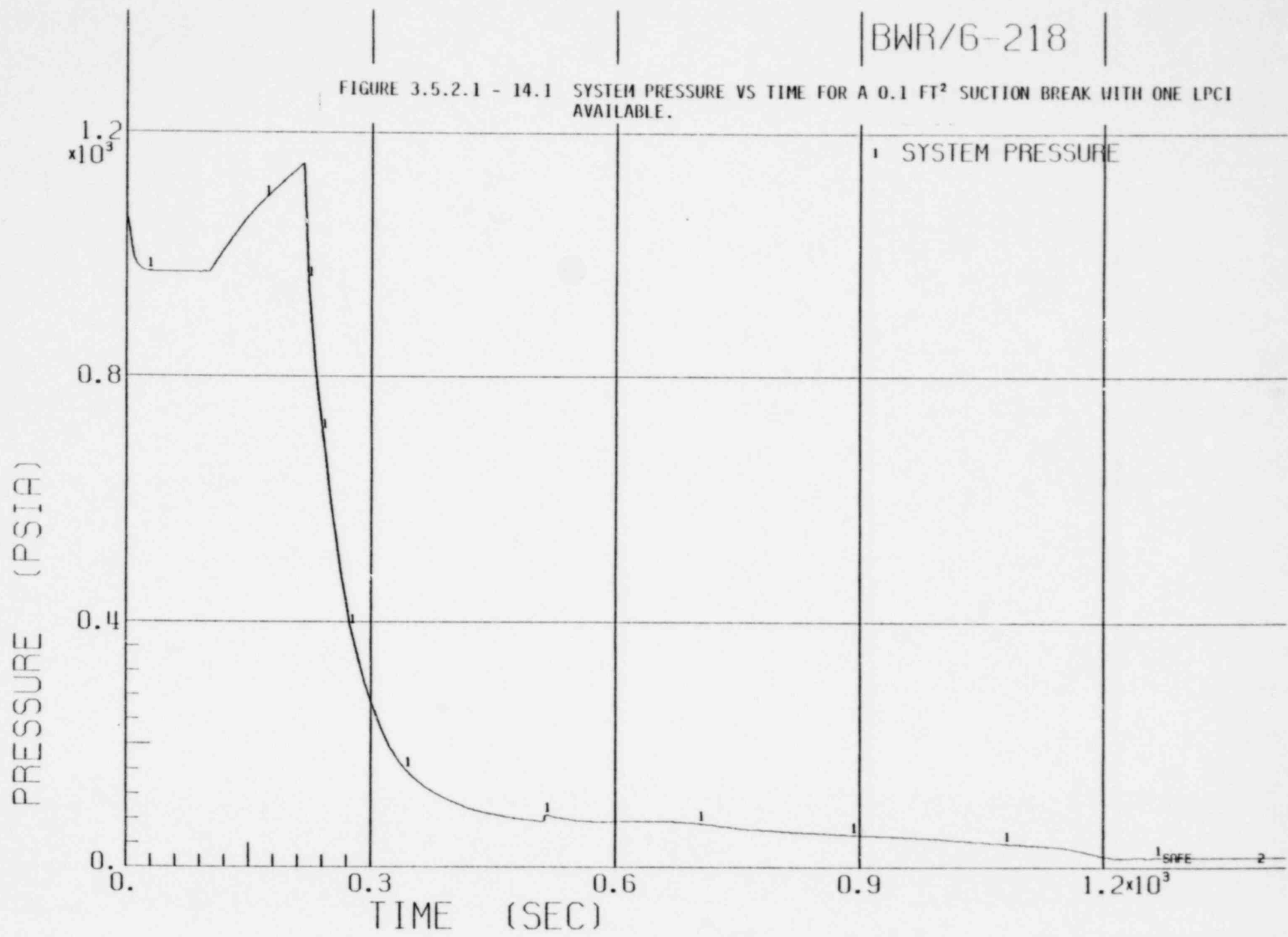
FIGURE 3.5.2.1 - 13.3 QUALITY VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AVAILABLE.



1549 108

BWR/6-218

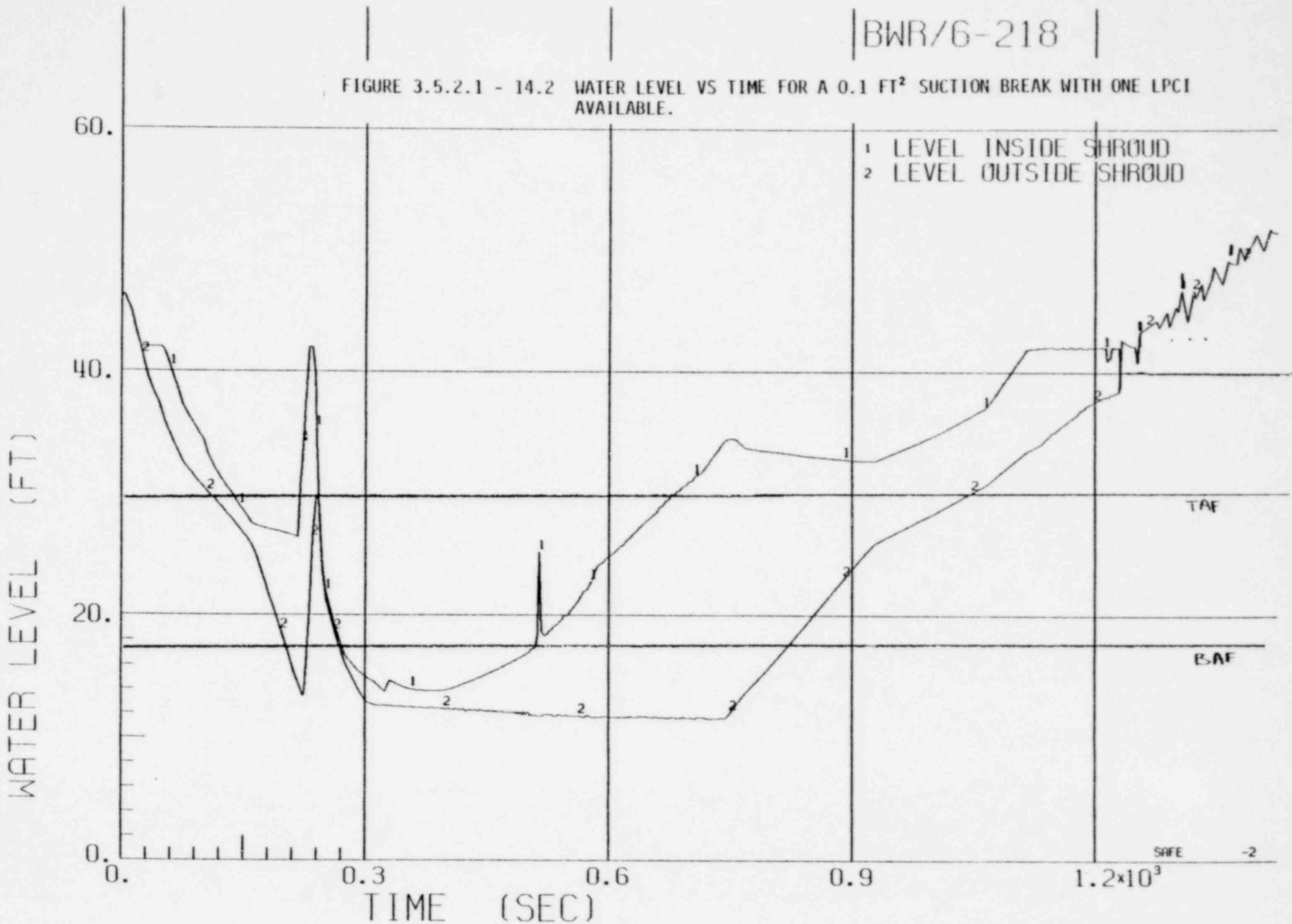
FIGURE 3.5.2.1 - 14.1 SYSTEM PRESSURE VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AVAILABLE.



1549 109

BWR/6-218

FIGURE 3.5.2.1 - 14.2 WATER LEVEL VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AVAILABLE.



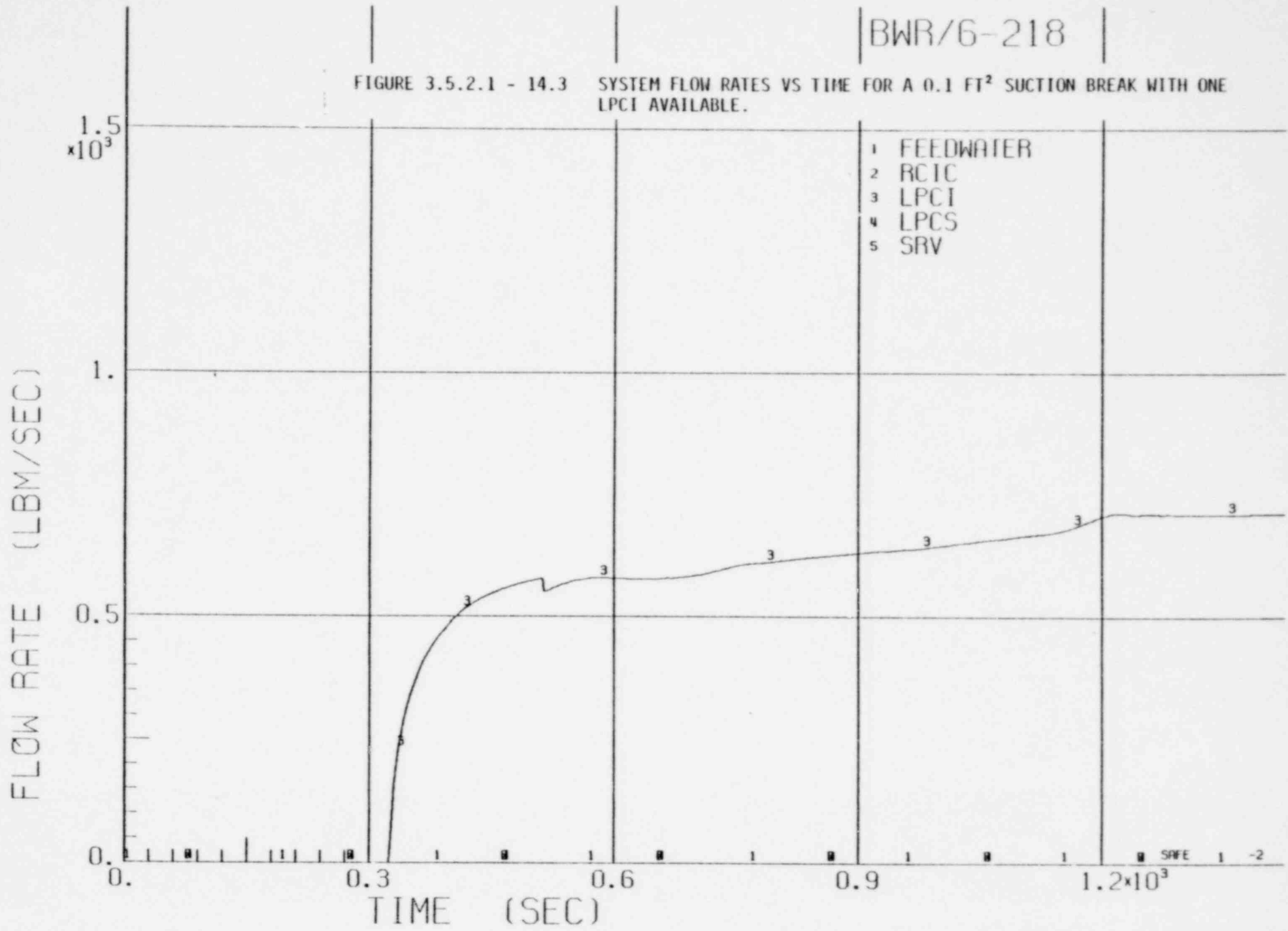
WATER LEVEL (FT)

TIME (SEC)

1549 110

BWR/6-218

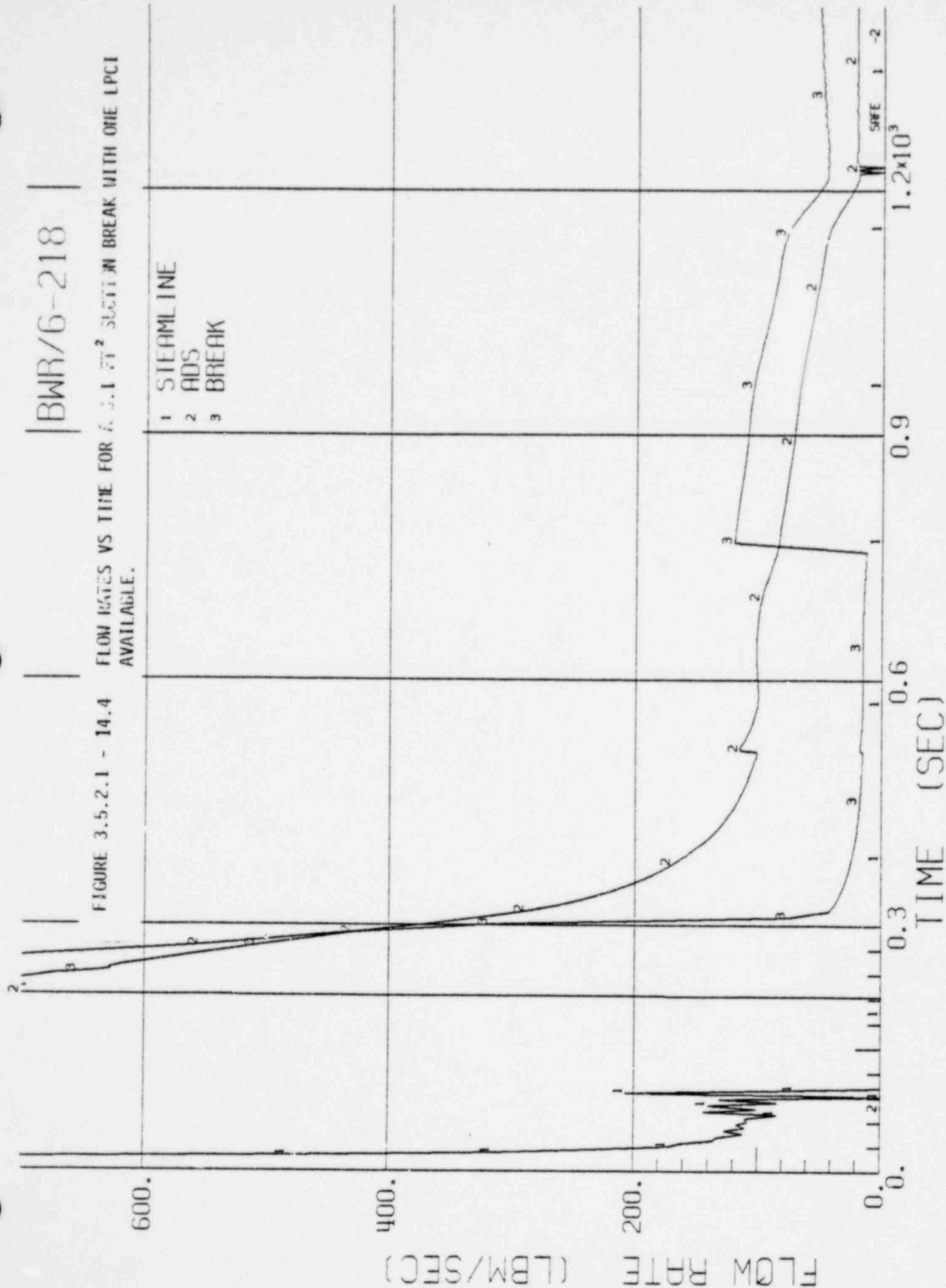
FIGURE 3.5.2.1 - 14.3 SYSTEM FLOW RATES VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AVAILABLE.



1549 111

BWR/6-218

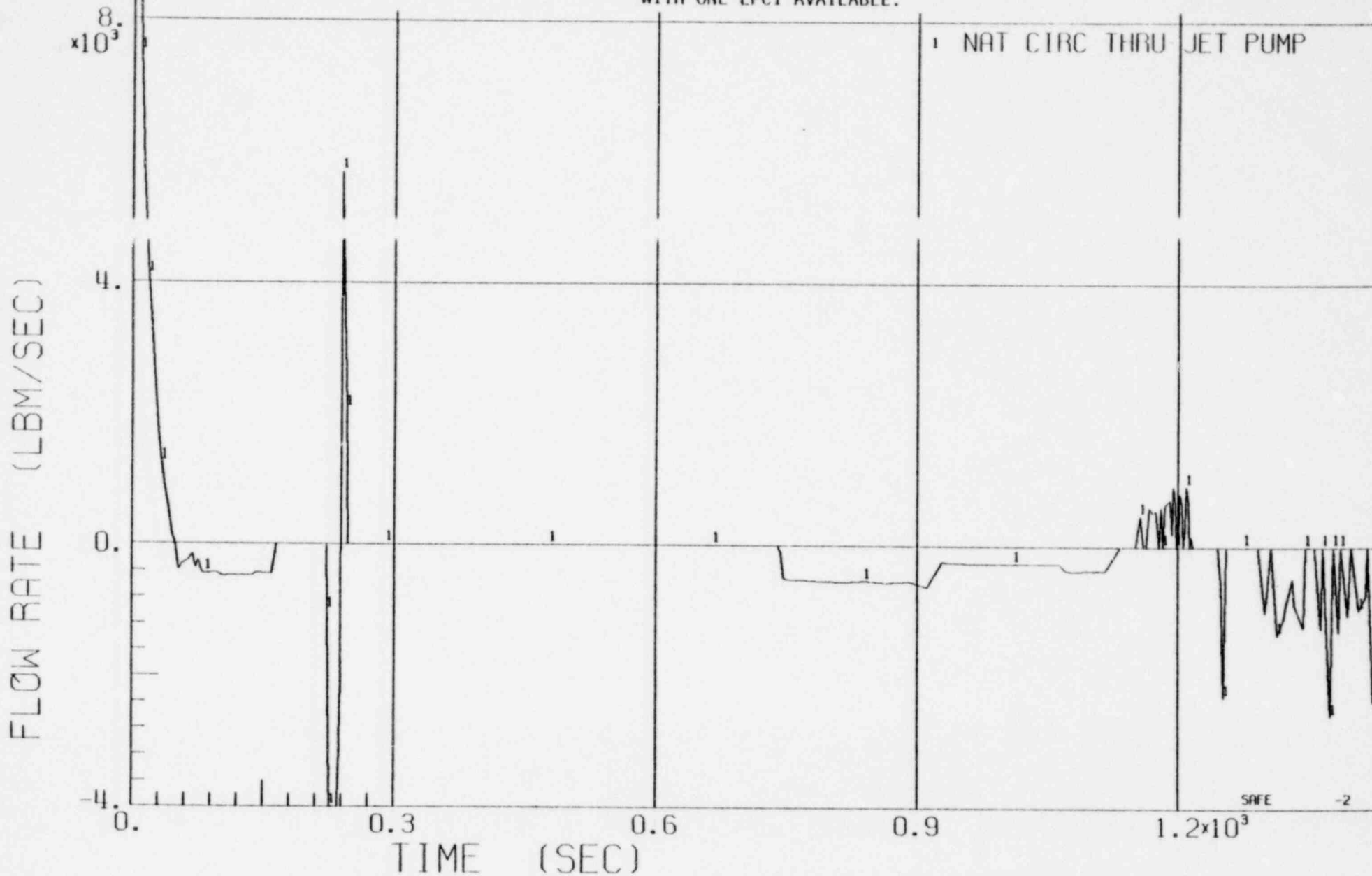
FIGURE 3.5.2.1 - 14.4 FLOW RATES VS TIME FOR 4.3.1 FT² SECTION BREAK WITH ONE LPCI AVAILABLE.



1549 112

BWR/6-218

FIGURE 3.5.2.1 - 14.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AVAILABLE.



SAFE

-2

1549 113

FLOW RATE (LBM/SEC)

$\times 10^3$

4.

0.

0.

0.3

0.6

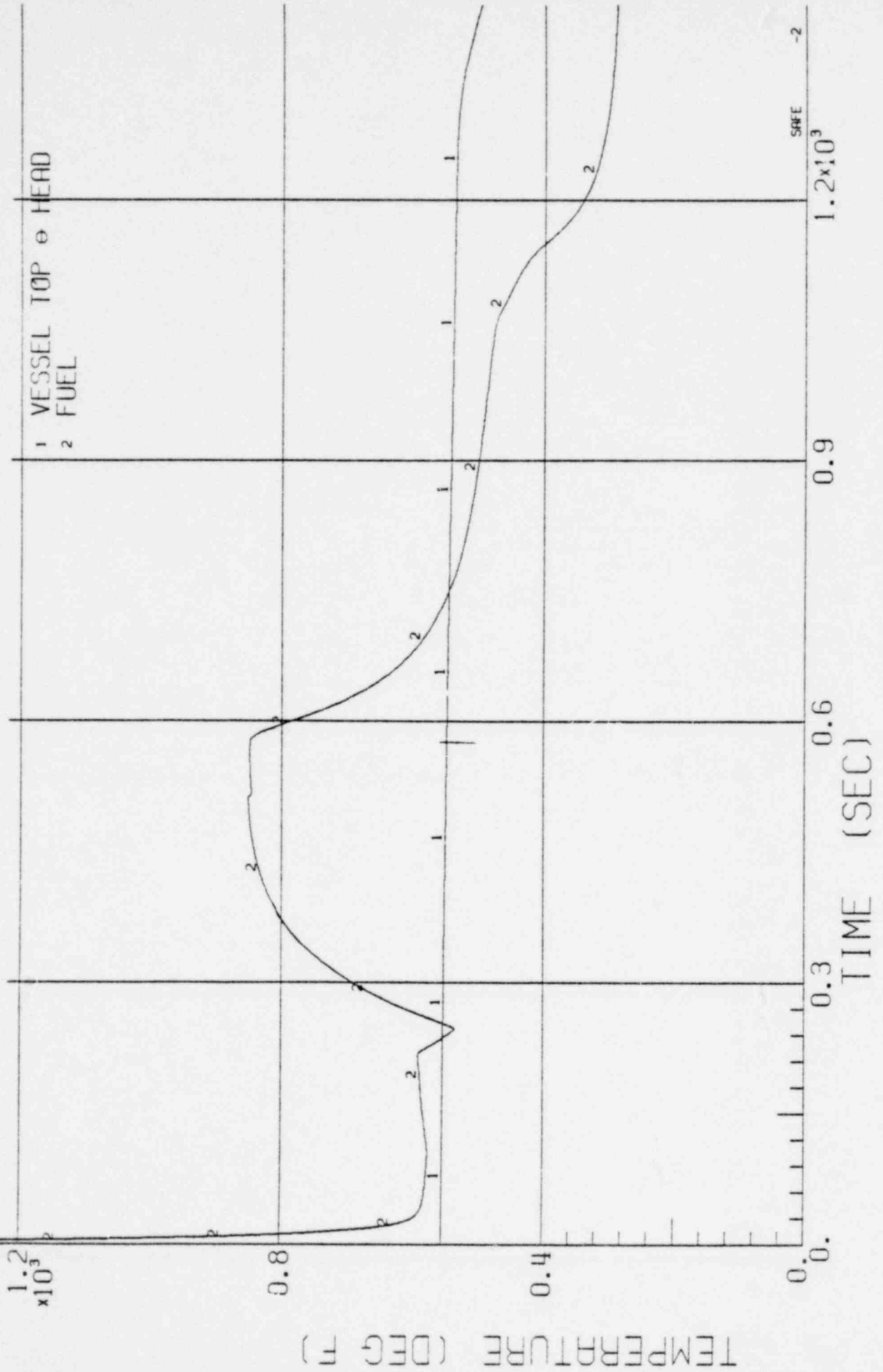
0.9

1.2×10^3

TIME (SEC)

BWR/6-218

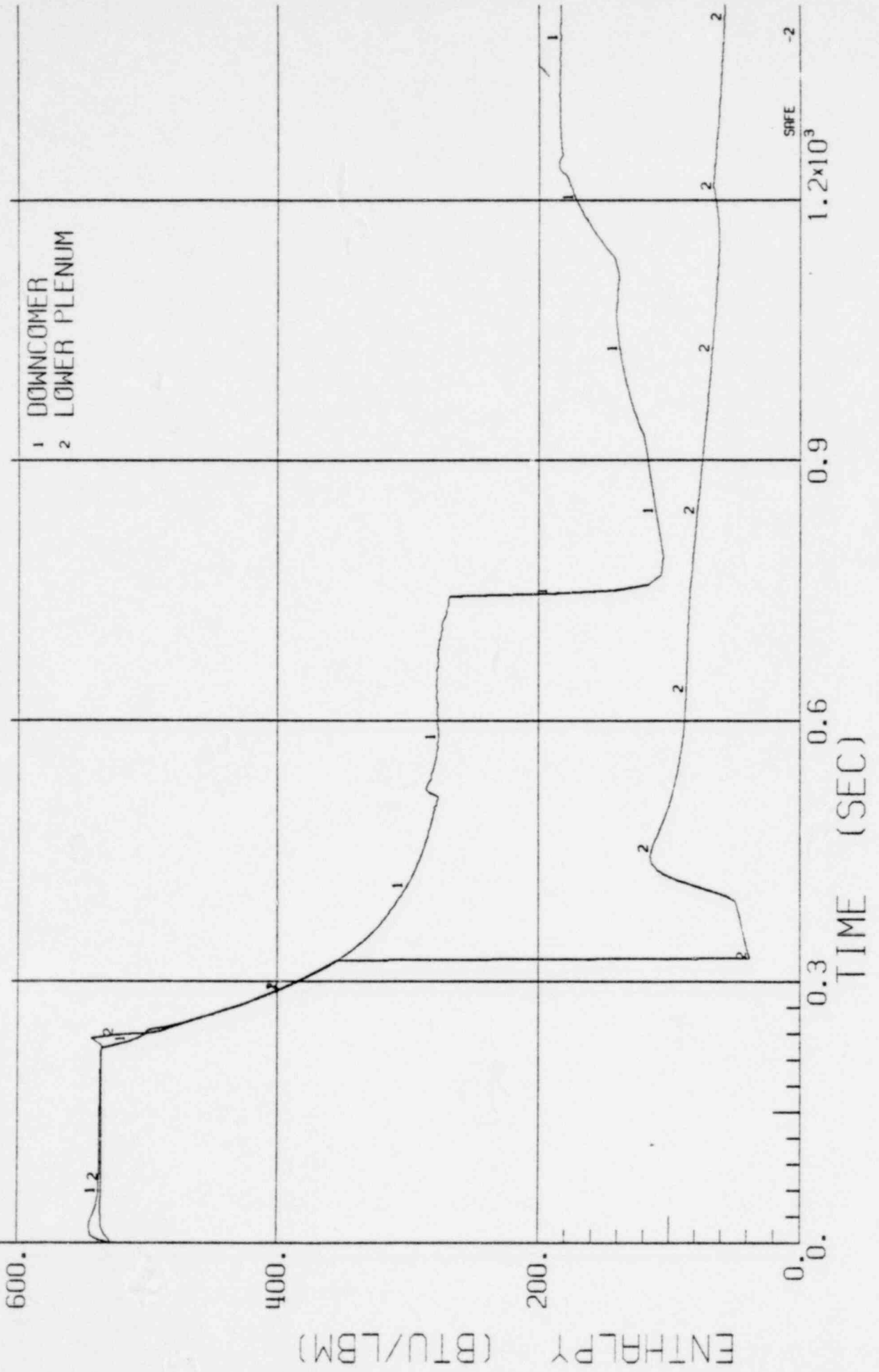
FIGURE 3.5.2.1 - 14.6 TEMPERATURE VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AVAILABLE.



SAFE -2

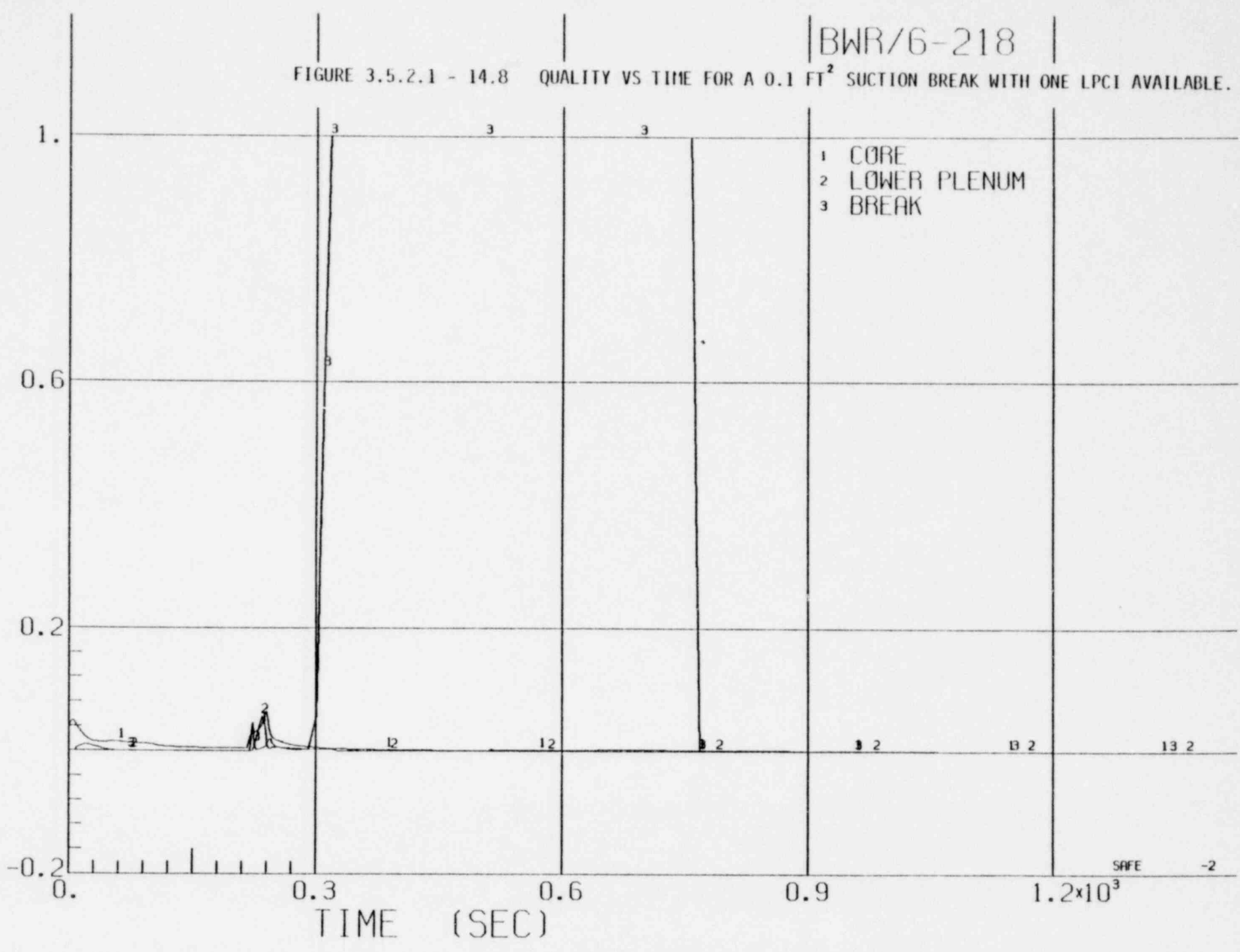
BWR/6-218

FIGURE 3.5.2.1 - 14.7 ENTHALPY VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AVAILABLE



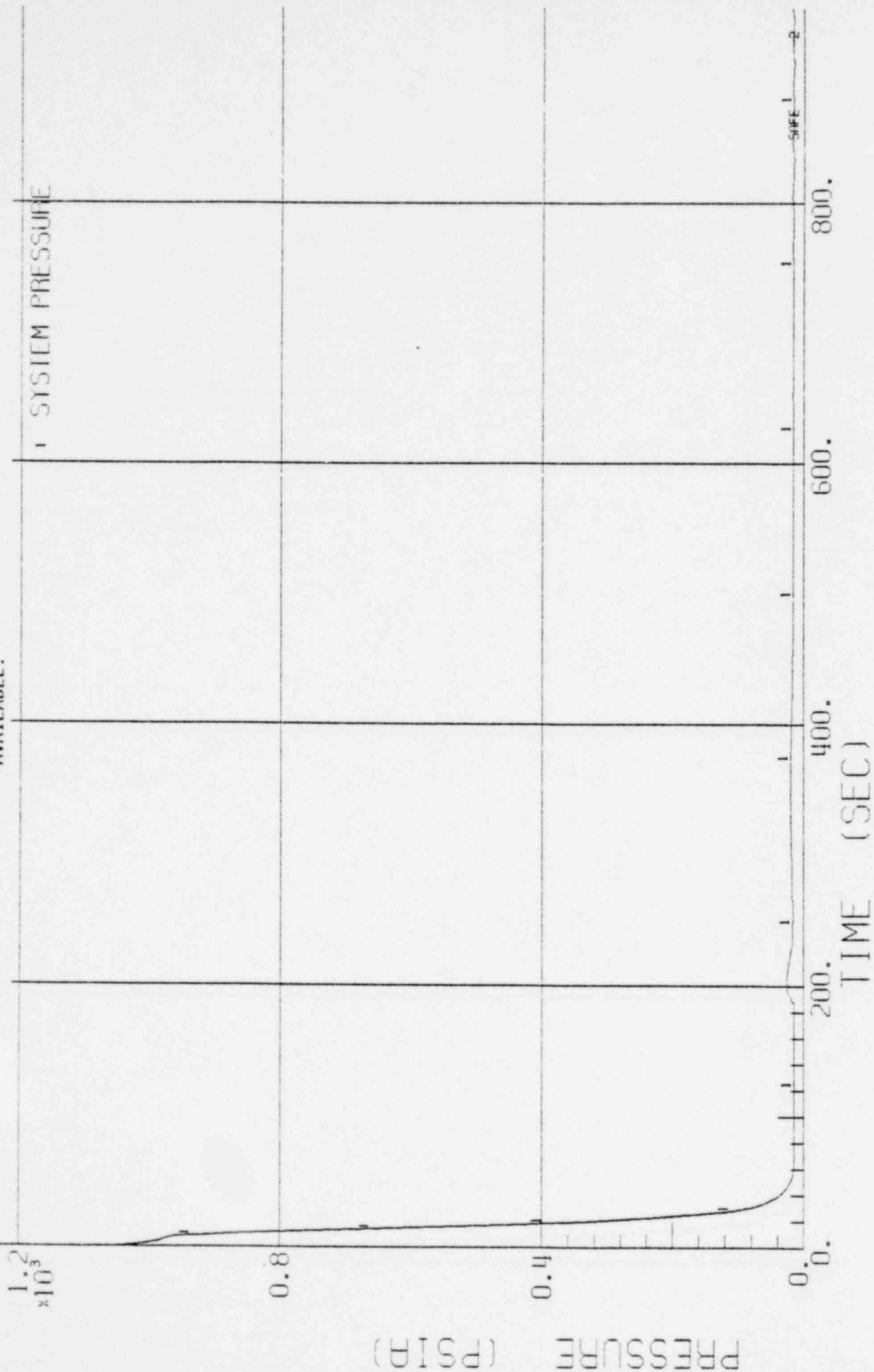
BWR/6-218

FIGURE 3.5.2.1 - 14.8 QUALITY VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AVAILABLE.



BWR/4-218

FIGURE 3.5.2.1 - 15.1 SYSTEM PRESSURE VS TIME FOR A DBA SUCTION BREAK WITH ONE LPCI AVAILABLE.



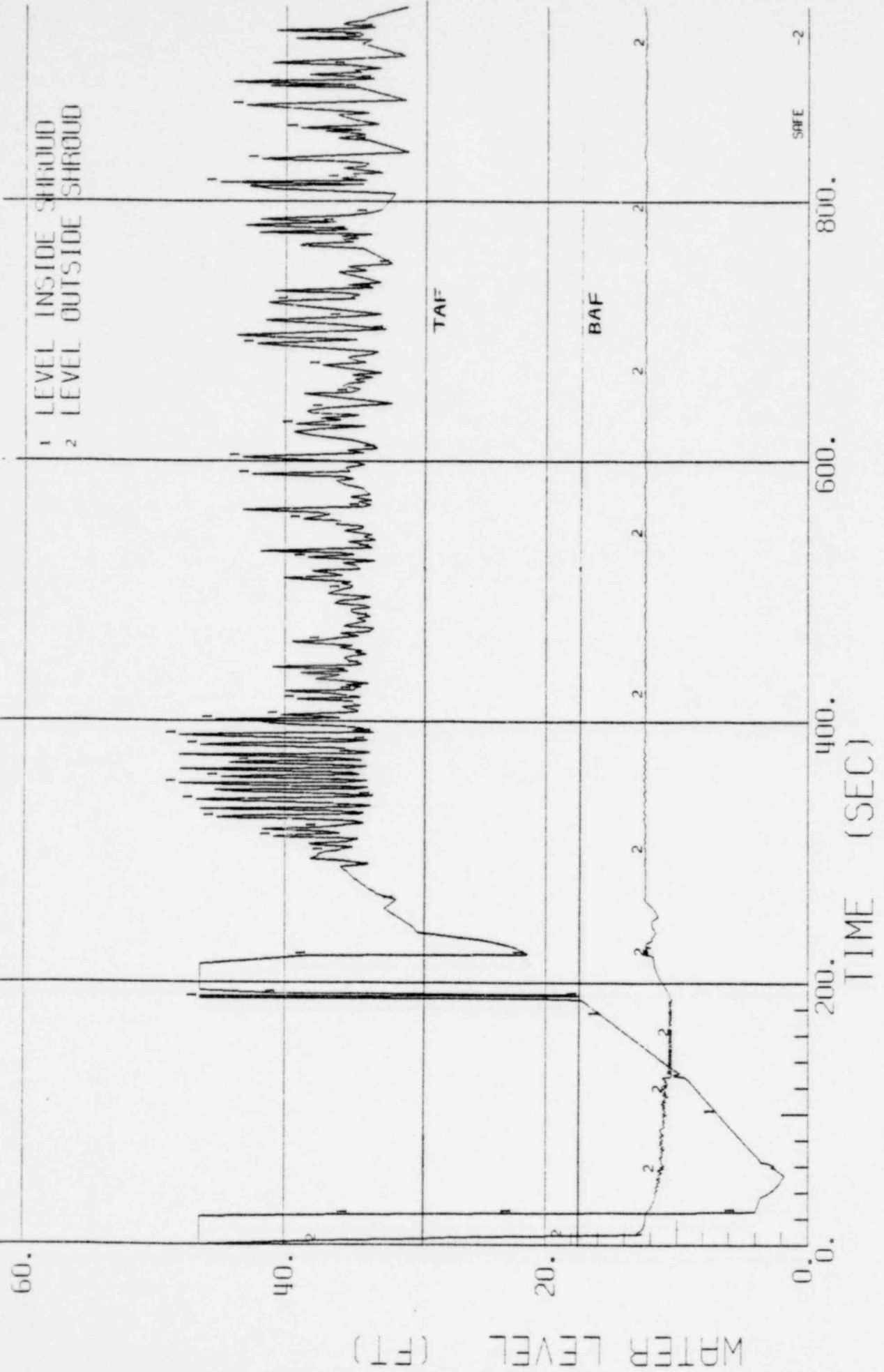
PRESSURE (PSIA)

TIME (SEC)

1549 117

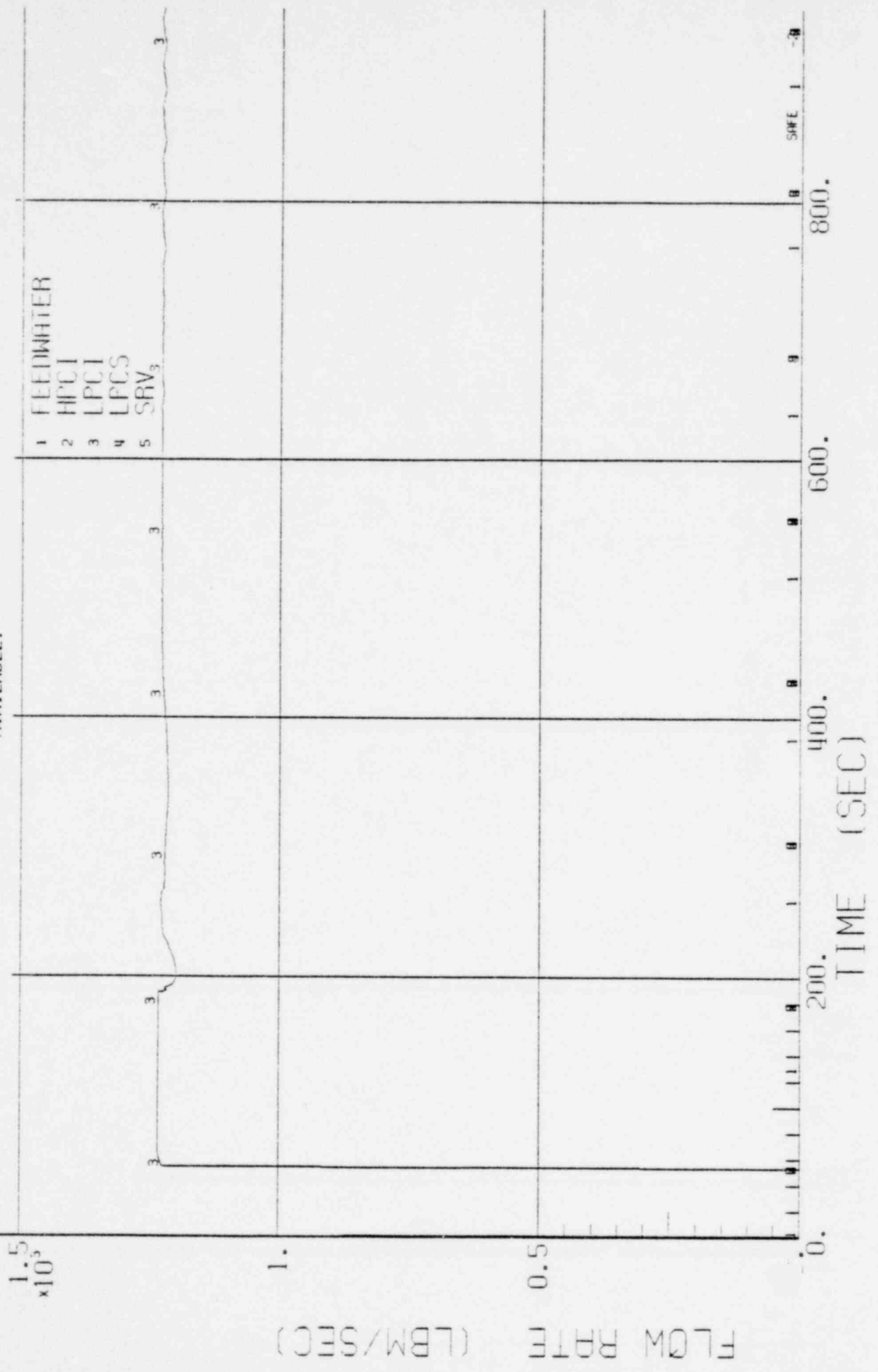
BWR/4-218

FIGURE 3.5.2.1 - 15.2 WATER LEVEL VS TIME FOR A DBA SUCTION BREAK WITH ONE LPCI AVAILABLE.



BWR/4-218

FIGURE 3.5.2.1 - 15.3 SYSTEM FLOW RATES VS TIME FOR A DBA SUCTION BREAK WITH ONE LPCI AVAILABLE.



FLOW RATE (LBM/SEC)

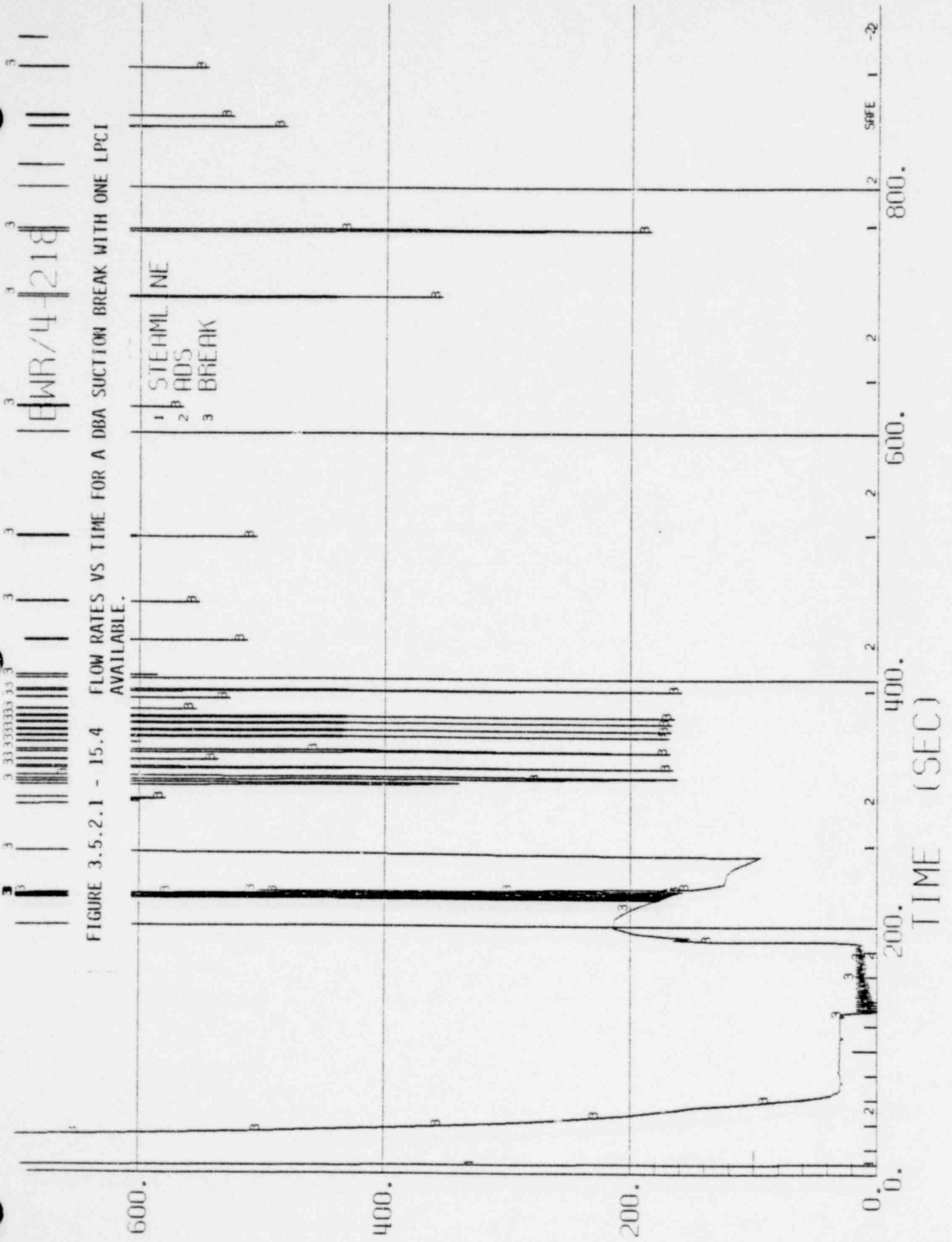
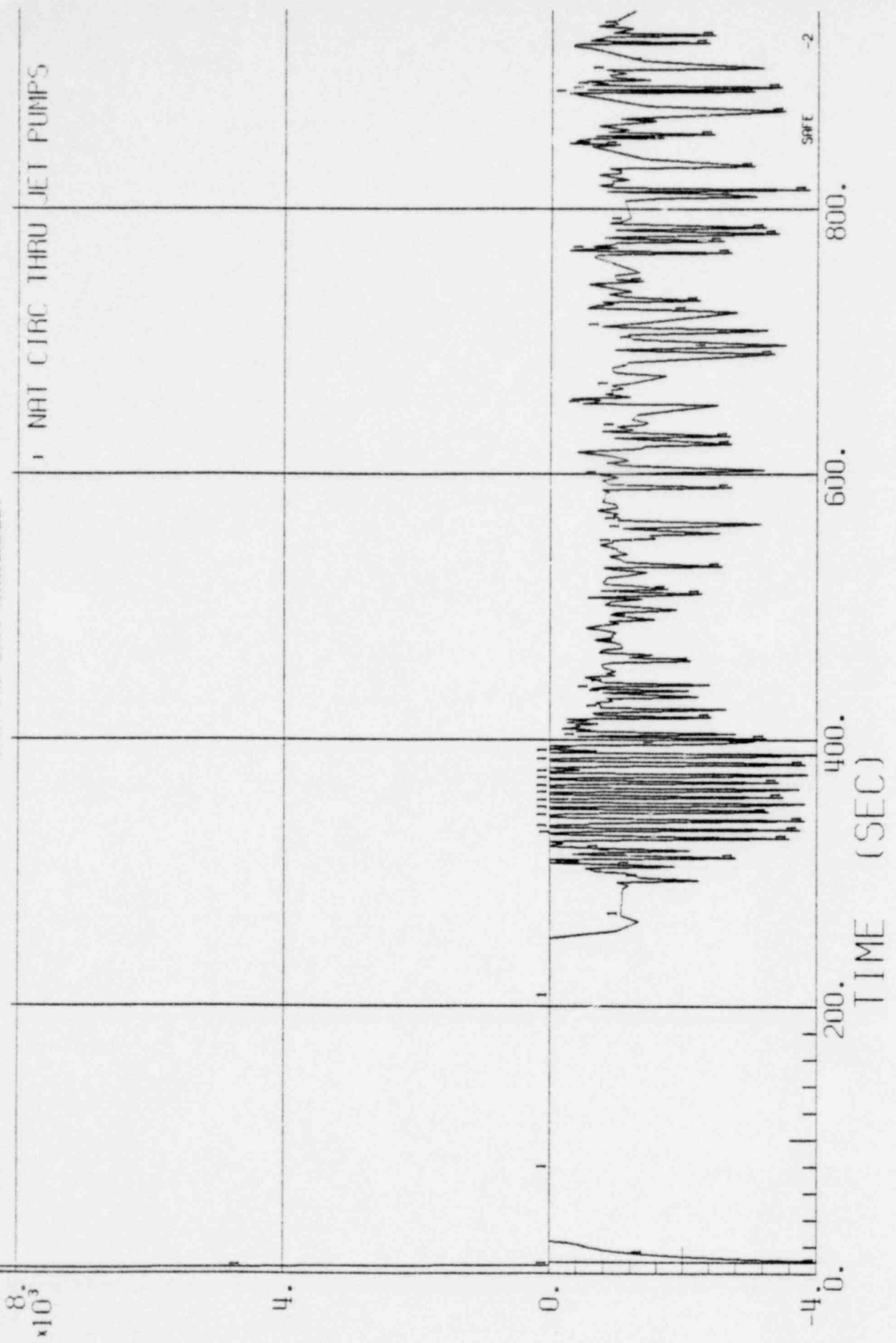


FIGURE 3.5.2.1 - 15.4 FLOW RATES VS TIME FOR A DBA SUCTION BREAK WITH ONE LPCI AVAILABLE.

EWR/4-218

BWR/4-218

FIGURE 3.5.2.1 - 15.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A DBA SUCTION BREAK WITH ONE LPCI AVAILABLE.

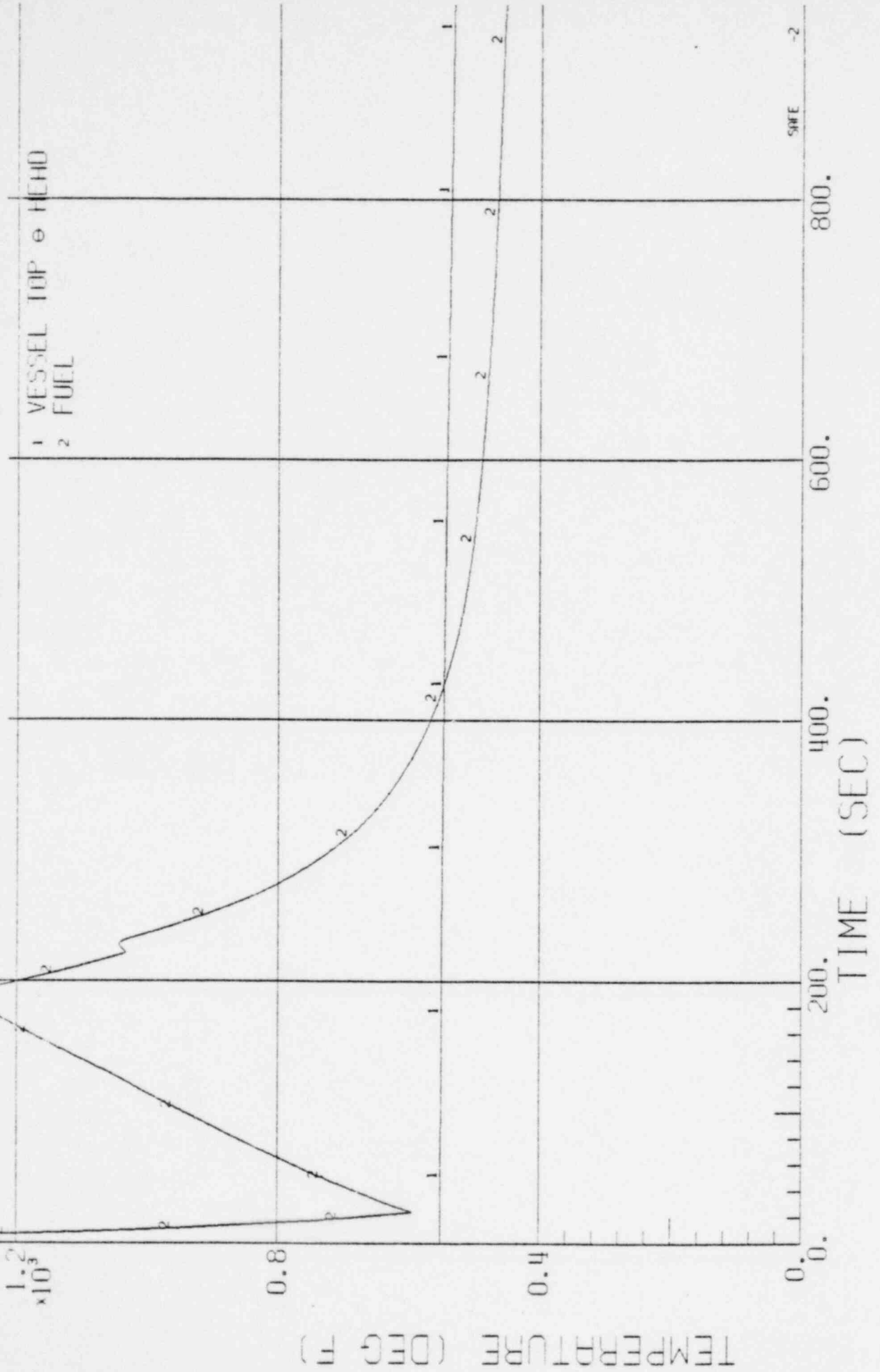


FLOW RATE (LBM/SEC)

1549 121

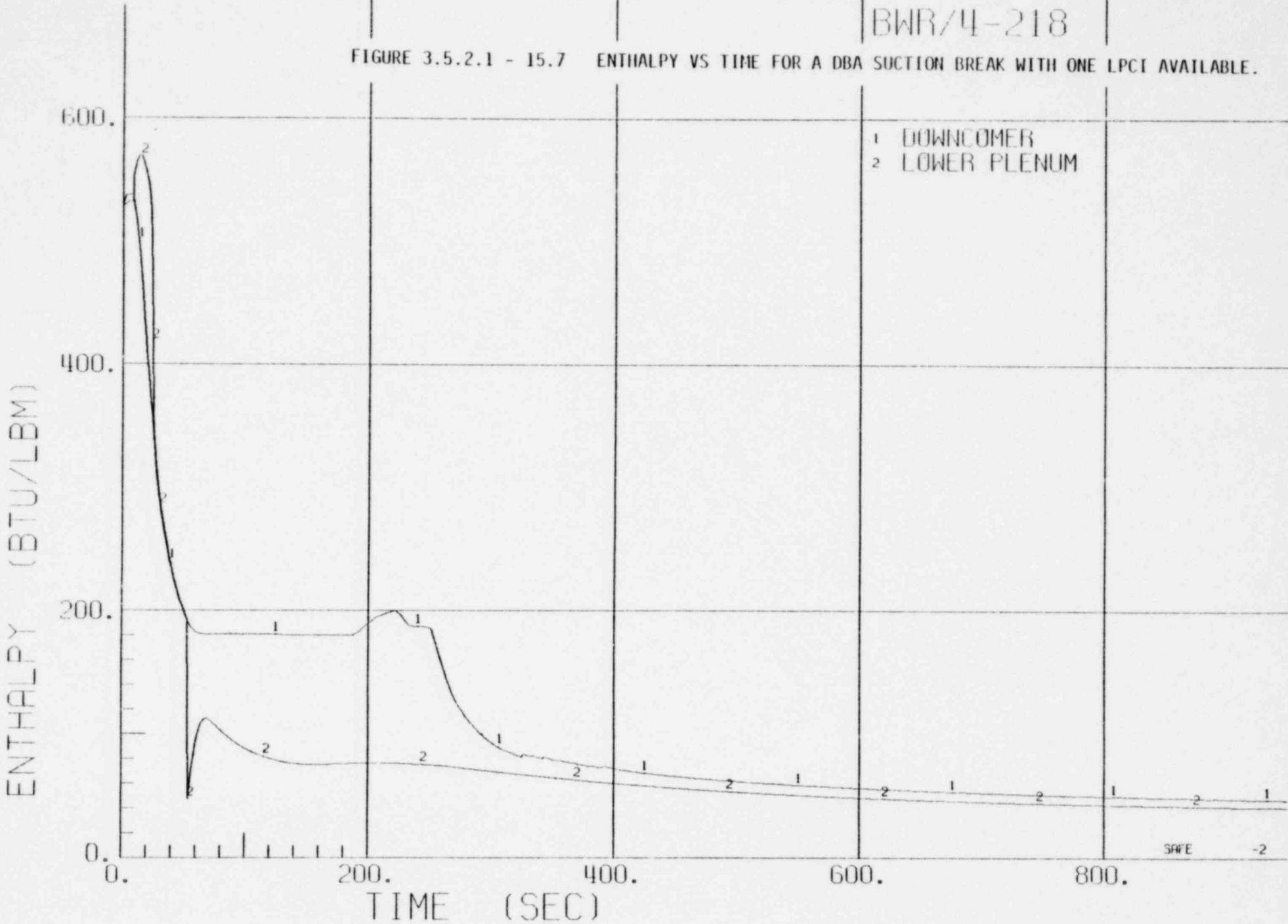
BWR/4-218

FIGURE 3.5.2.1 - 15.6 TEMPERATURE VS TIME FOR A DBA SUCTION BREAK WITH ONE LPCI AVAILABLE.



BWR/4-218

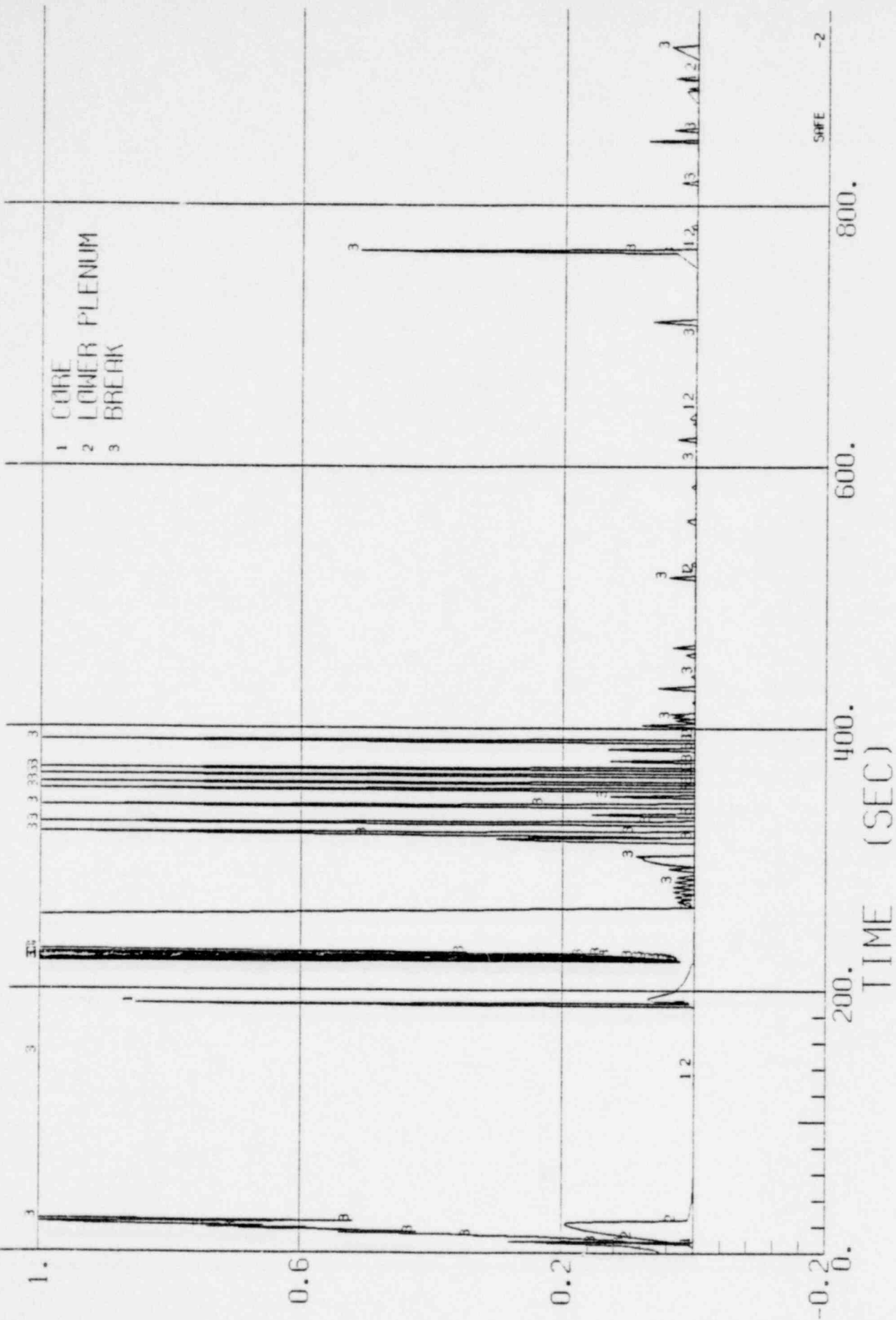
FIGURE 3.5.2.1 - 15.7 ENTHALPY VS TIME FOR A DBA SUCTION BREAK WITH ONE LPCI AVAILABLE.



1549 123

BWR/4-218

FIGURE 3.5.2.1 - 15.8 QUALITY VS TIME FOR A DBA SUCTION BREAK WITH ONE LPCI AVAILABLE.

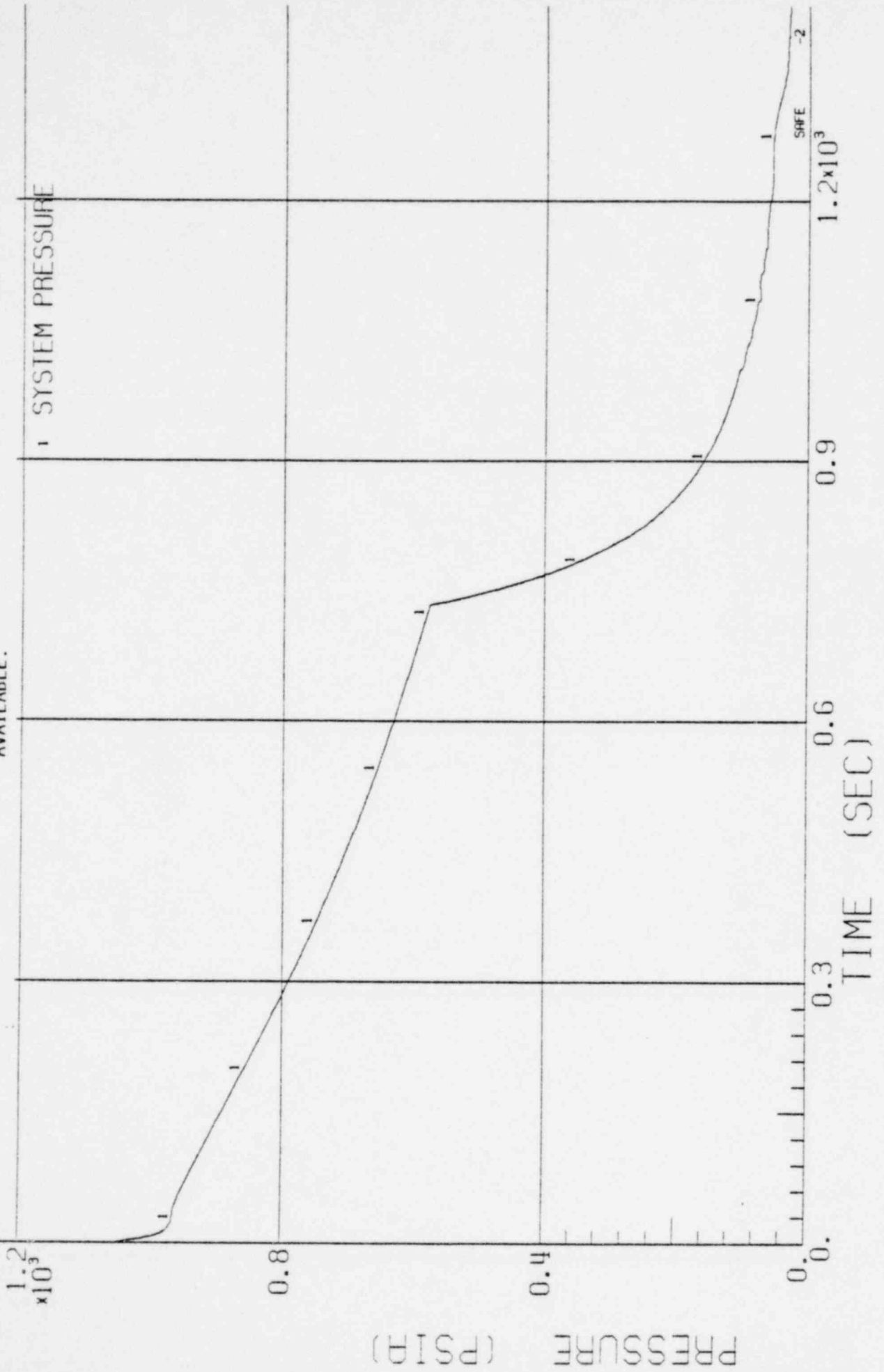


QUALITY

1549 124

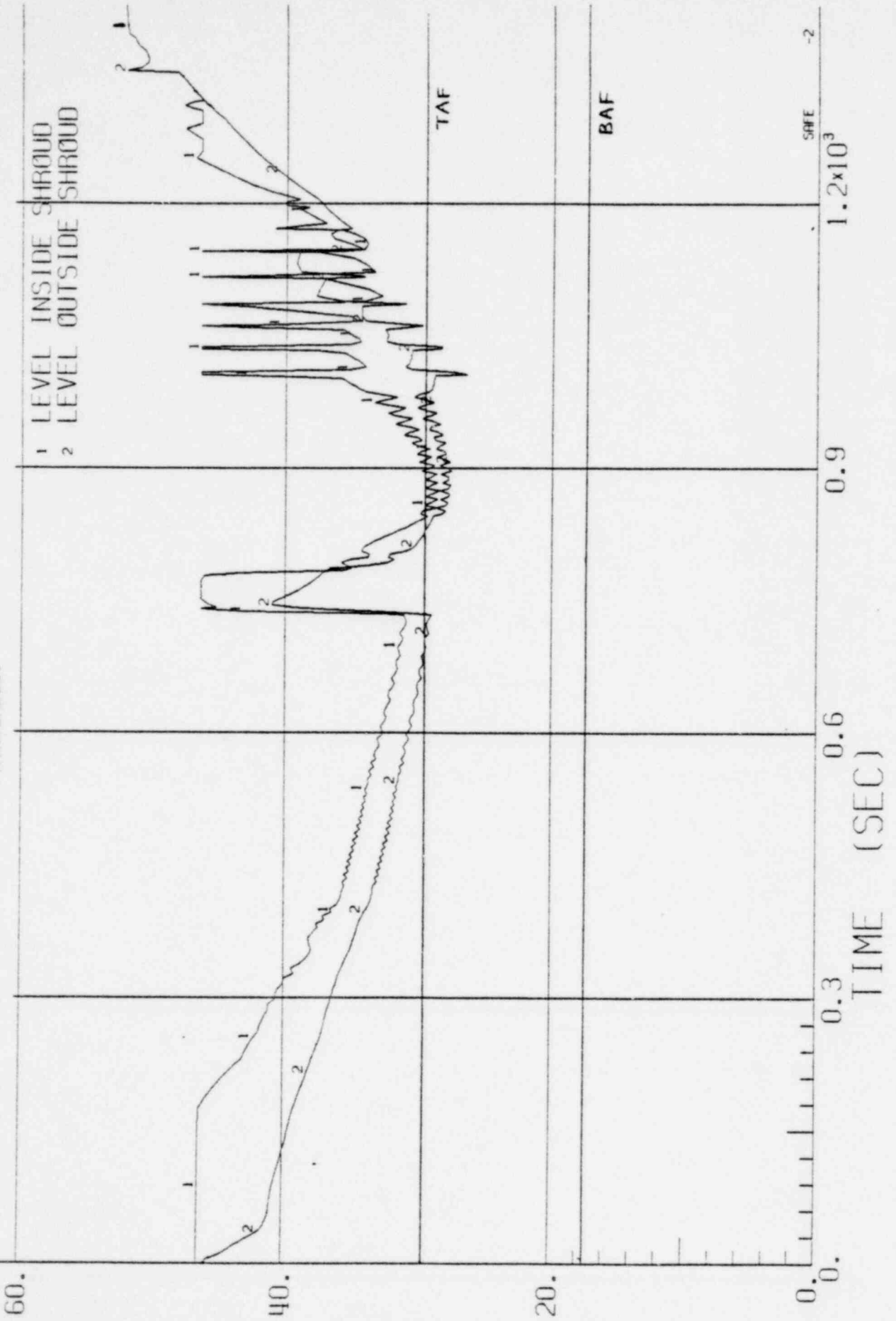
BWR/4-218

FIGURE 3.5.2.1 - 16.1 SYSTEM PRESSURE VS TIME FOR A 0.1 FT² STEAMLINE BREAK WITH ONE LPCI AVAILABLE.



BWR/4-218

FIGURE 3.5.2.1 - 16.2 WATER LEVEL VS TIME FOR A 0.1 FT² STEAMLINE BREAK WITH ONE LPCI AVAILABLE.

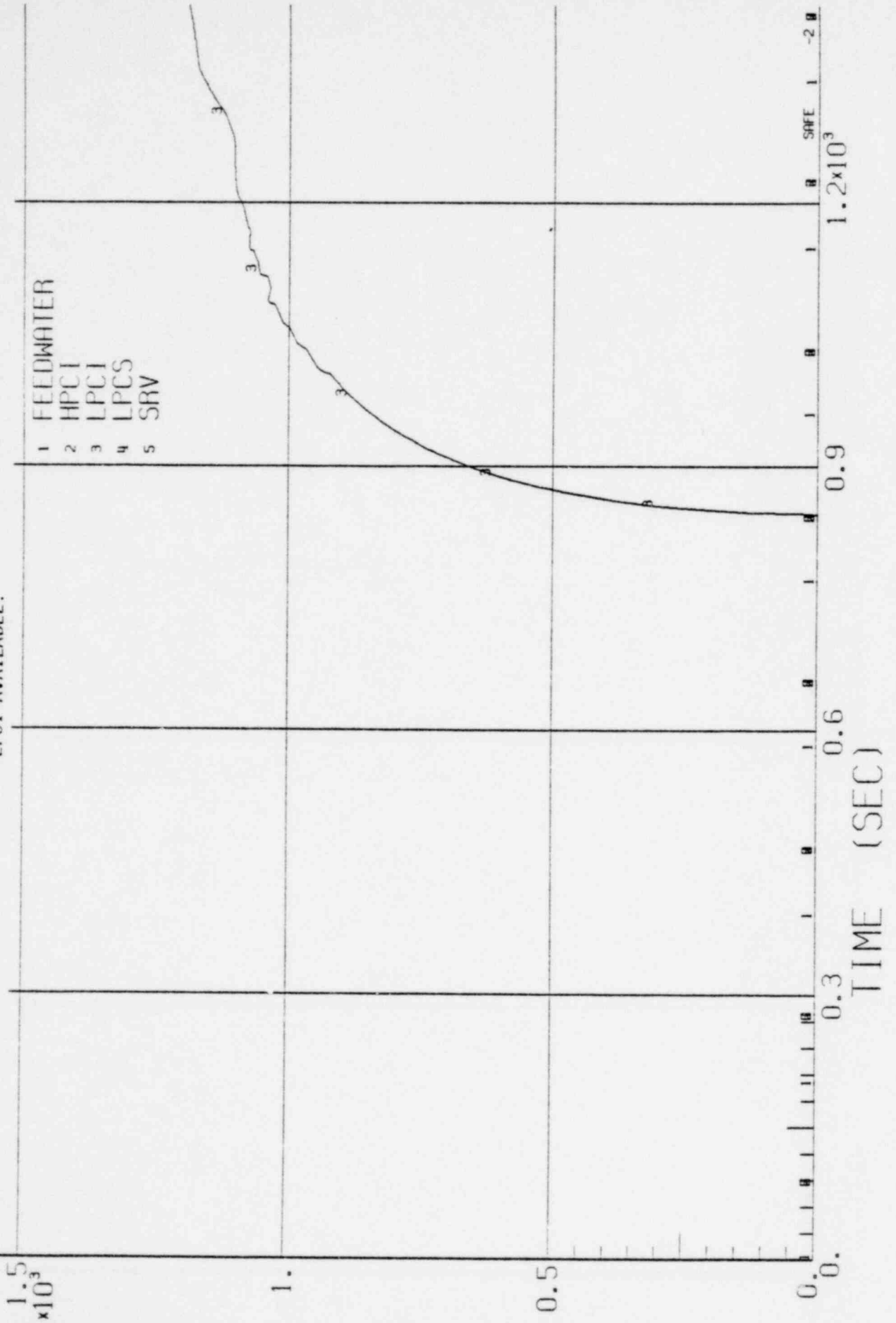


WATER LEVEL (FT)

1549 126

BWR/4-218

FIGURE 3.5.2.1 - 16.3 SYSTEM FLOW RATES VS TIME FOR A 0.1 FT² STEAMLINE BREAK WITH ONE LPCI AVAILABLE.



FLOW RATE (LBM/SEC)

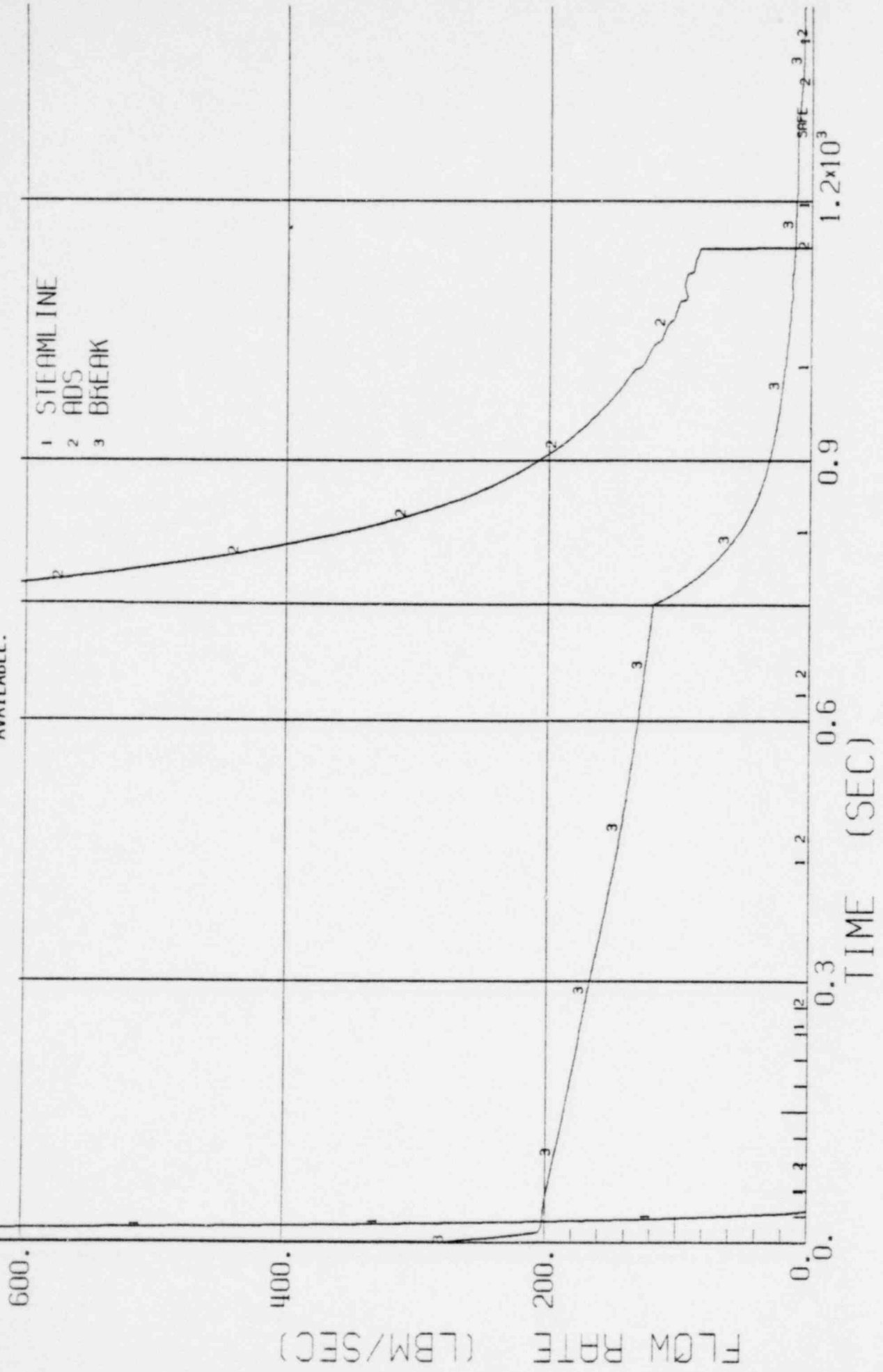
1549 127

TIME (SEC)

SAFE 1 -2

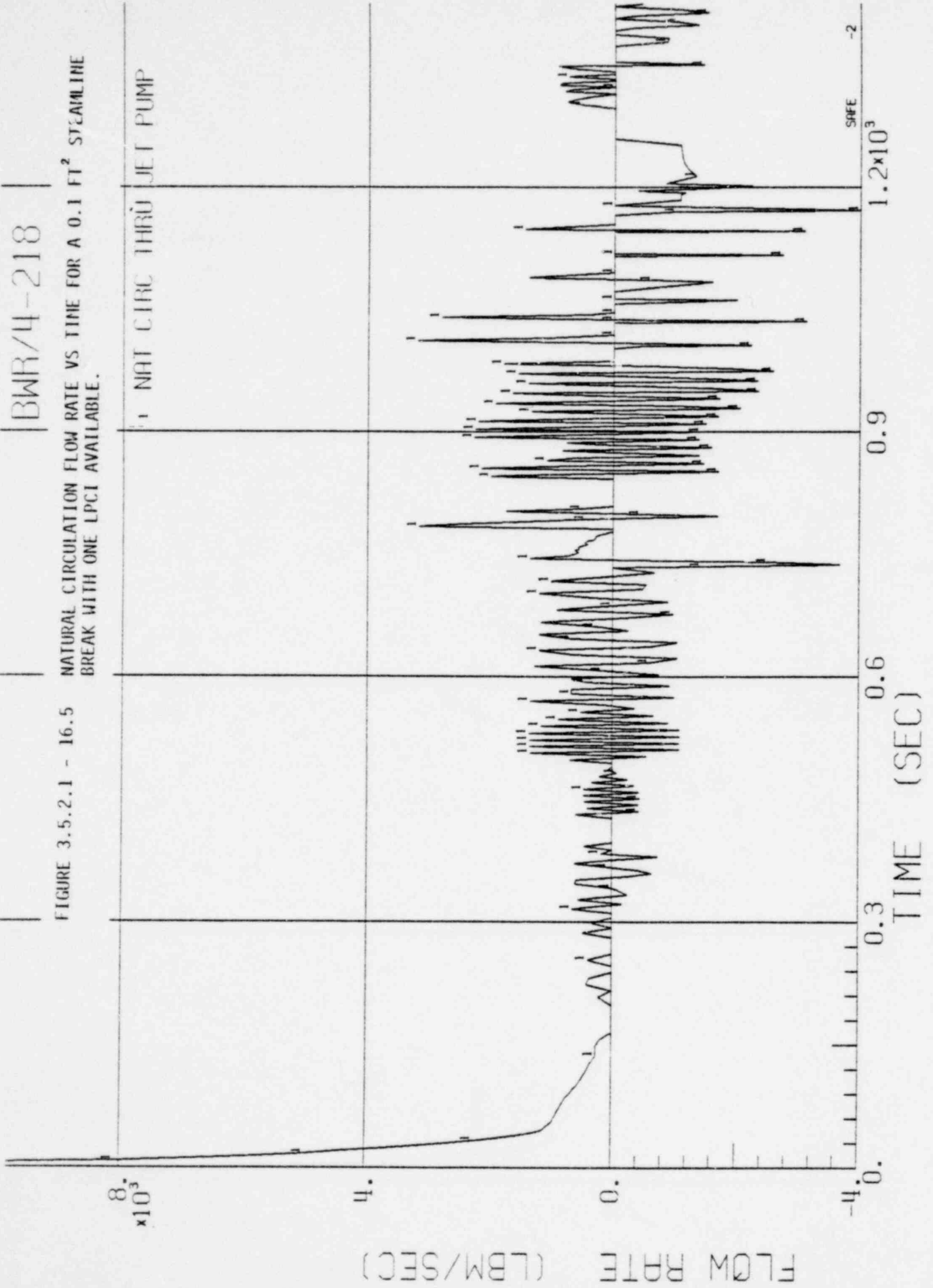
BWR/4-218

FIGURE 3.5.2.1 - 16.4 FLOW RATES VS TIME FOR A 0.1 Ft² STEAMLINER BREAK WITH ONE LPCI AVAILABLE.



BWR/4-218

FIGURE 3.5.2.1 - 16.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.1 FT² STEAMLINE BREAK WITH ONE LPCI AVAILABLE.



FLOW RATE (LBM/SEC)

1549 129

SAFE

1.2 x 10³

0.9

0.6

0.3

0.

TIME (SEC)

1.2 x 10³

0.9

0.6

0.3

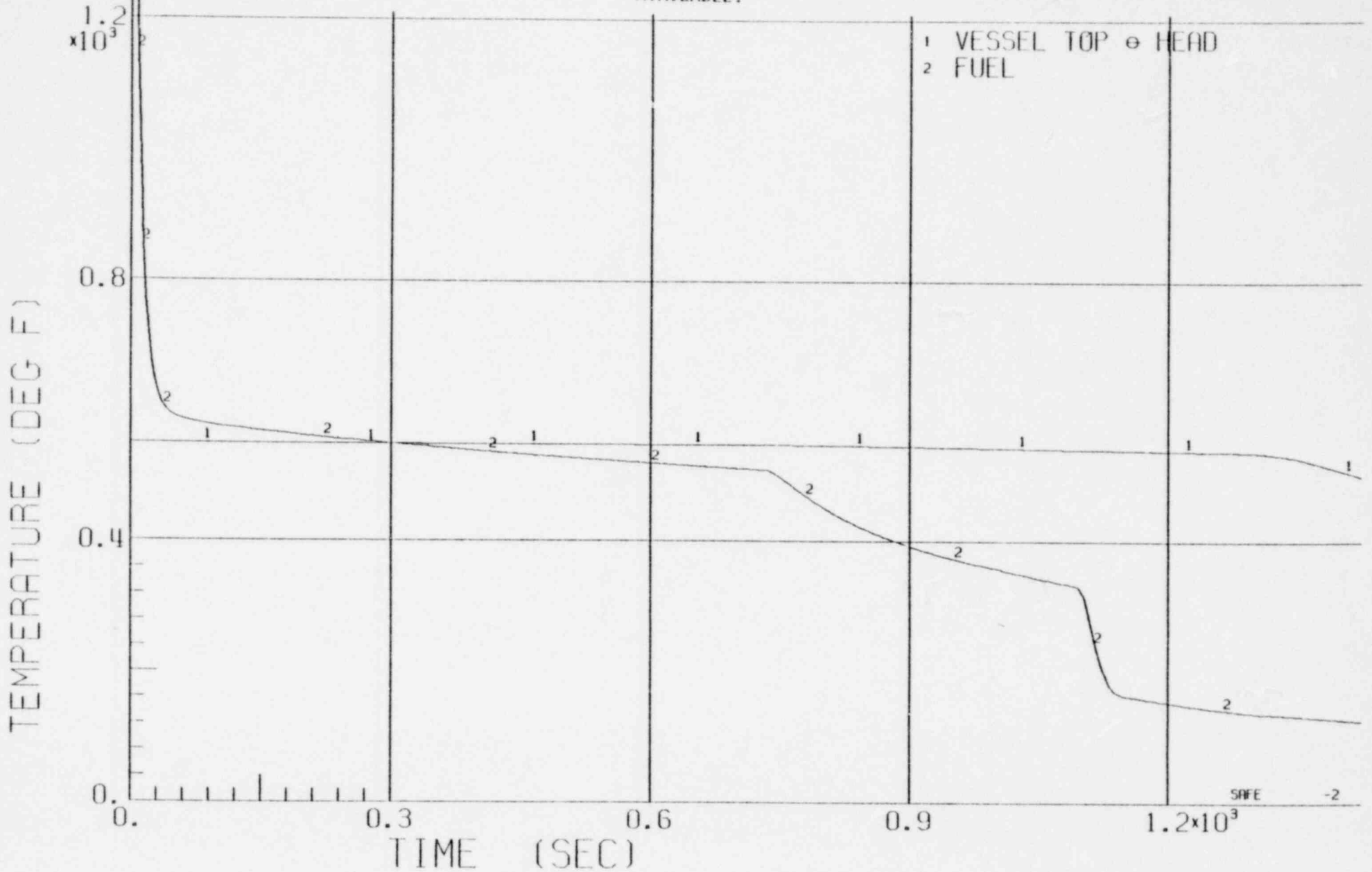
0.

-2

BWR/4-218

FIGURE 3.5.2.1 - 16.6

TEMPERATURE VS TIME FOR A 0.1 FT² STEAMLINE BREAK WITH ONE LPCI AVAILABLE.



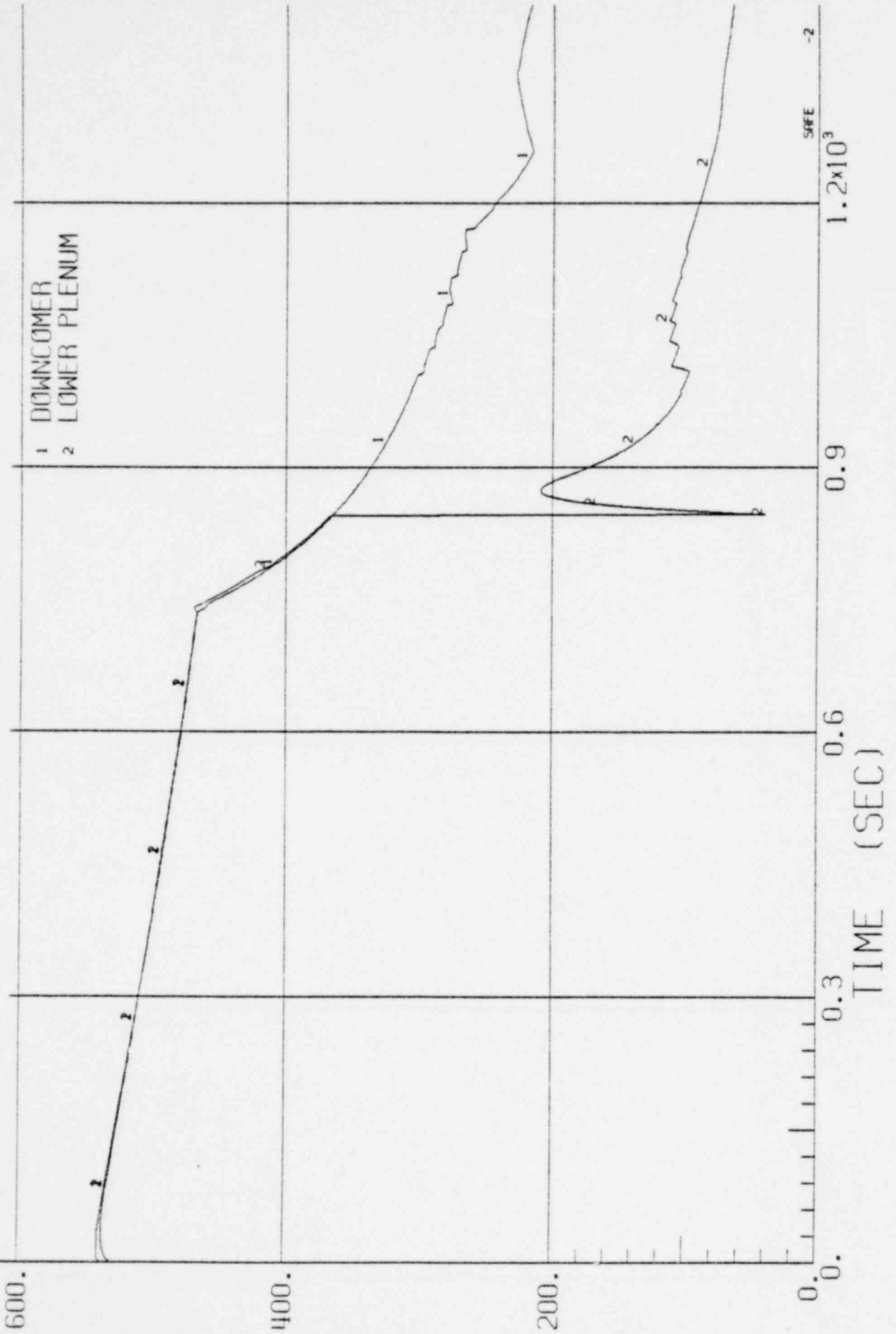
SAFE

-2

1549 130

BWR/4-218

FIGURE 3.5.2.1 - 16.7 ENTHALPY VS TIME FOR A 0.1 FT² STEAMLINE BREAK WITH ONE LPCI AVAILABLE.



ENTHALPY (BTU/LBM)

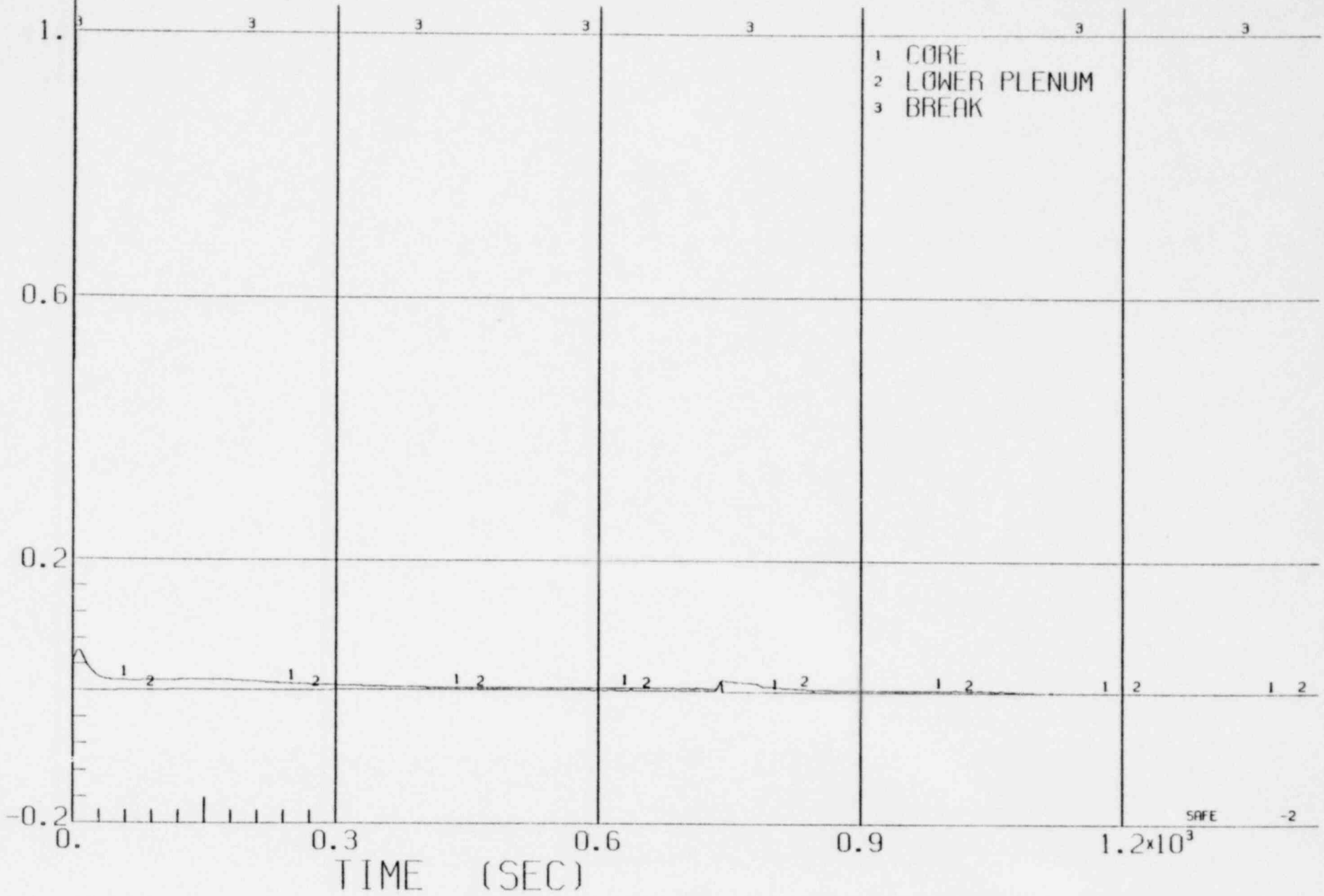
SAFE -2

1549 131

BWR/4-218

FIGURE 3.5.2.1 - 16.8

QUALITY VS TIME FOR A 0.1 FT² STEAMLINE BREAK WITH ONE LPCI AVAILABLE.

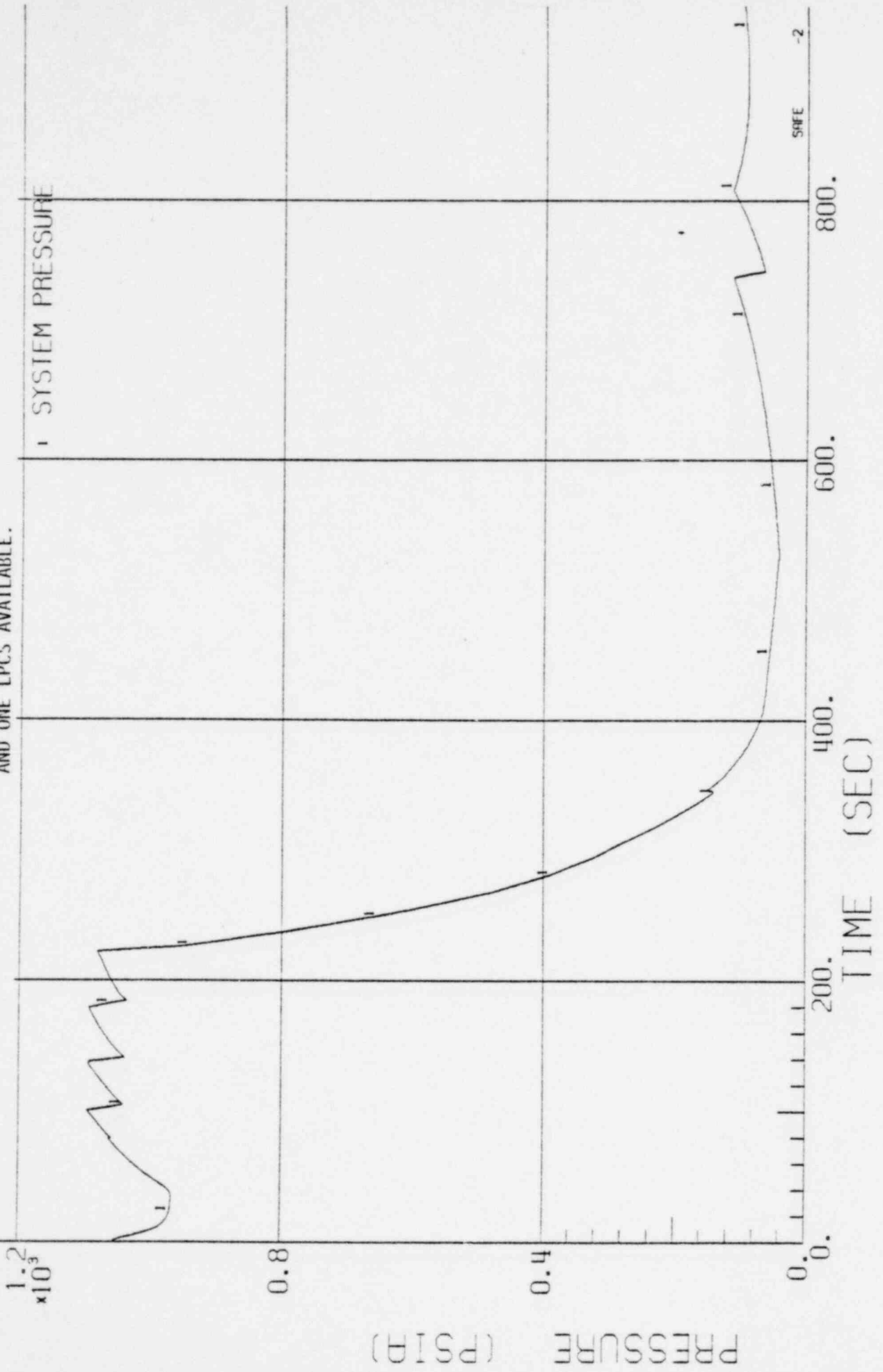


1549 132

QUALITY

BWR/4-218

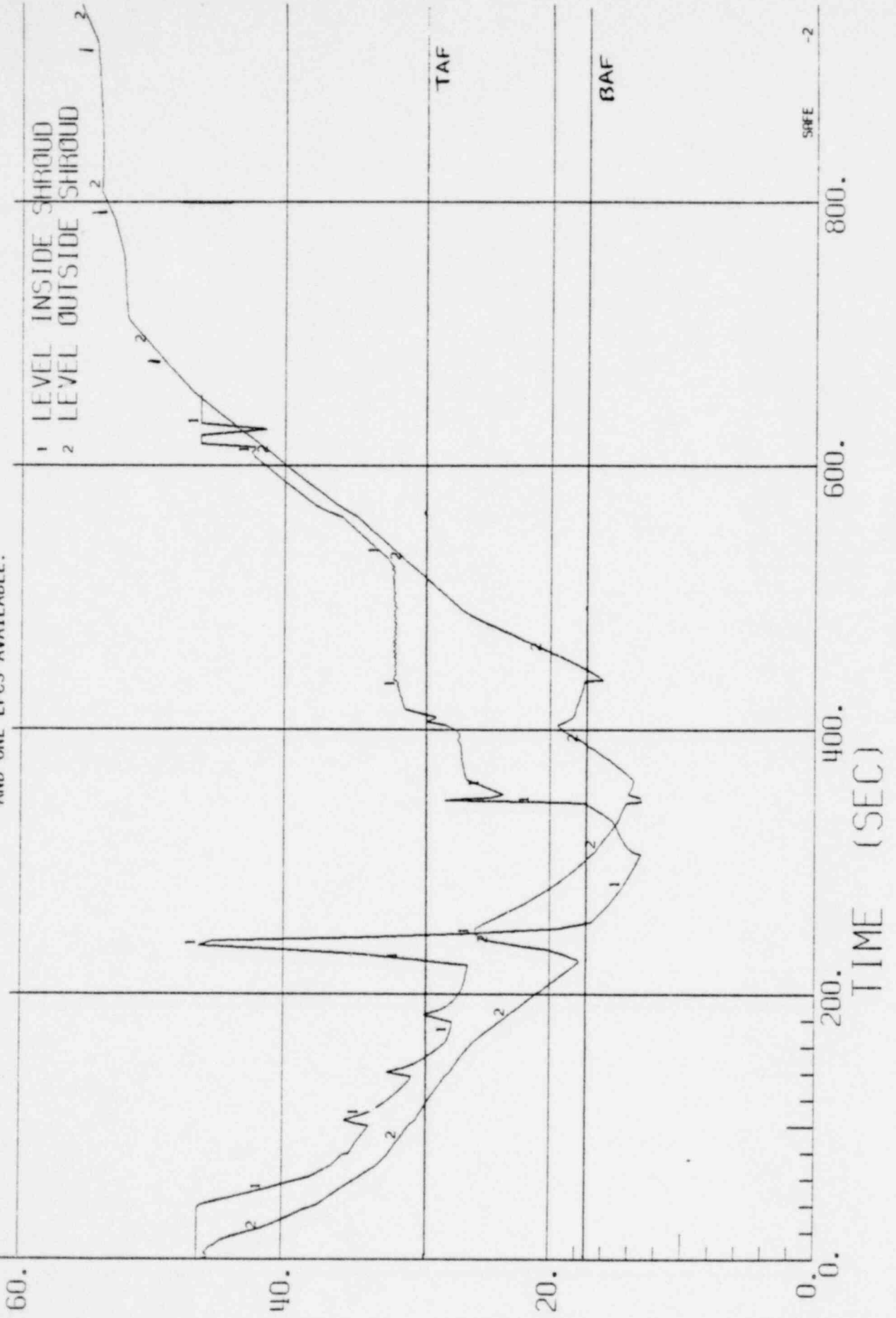
FIGURE 3.5.2.1 - 17.1 SYSTEM PRESSURE VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



PRESSURE (PSIA)

BWR/4-218

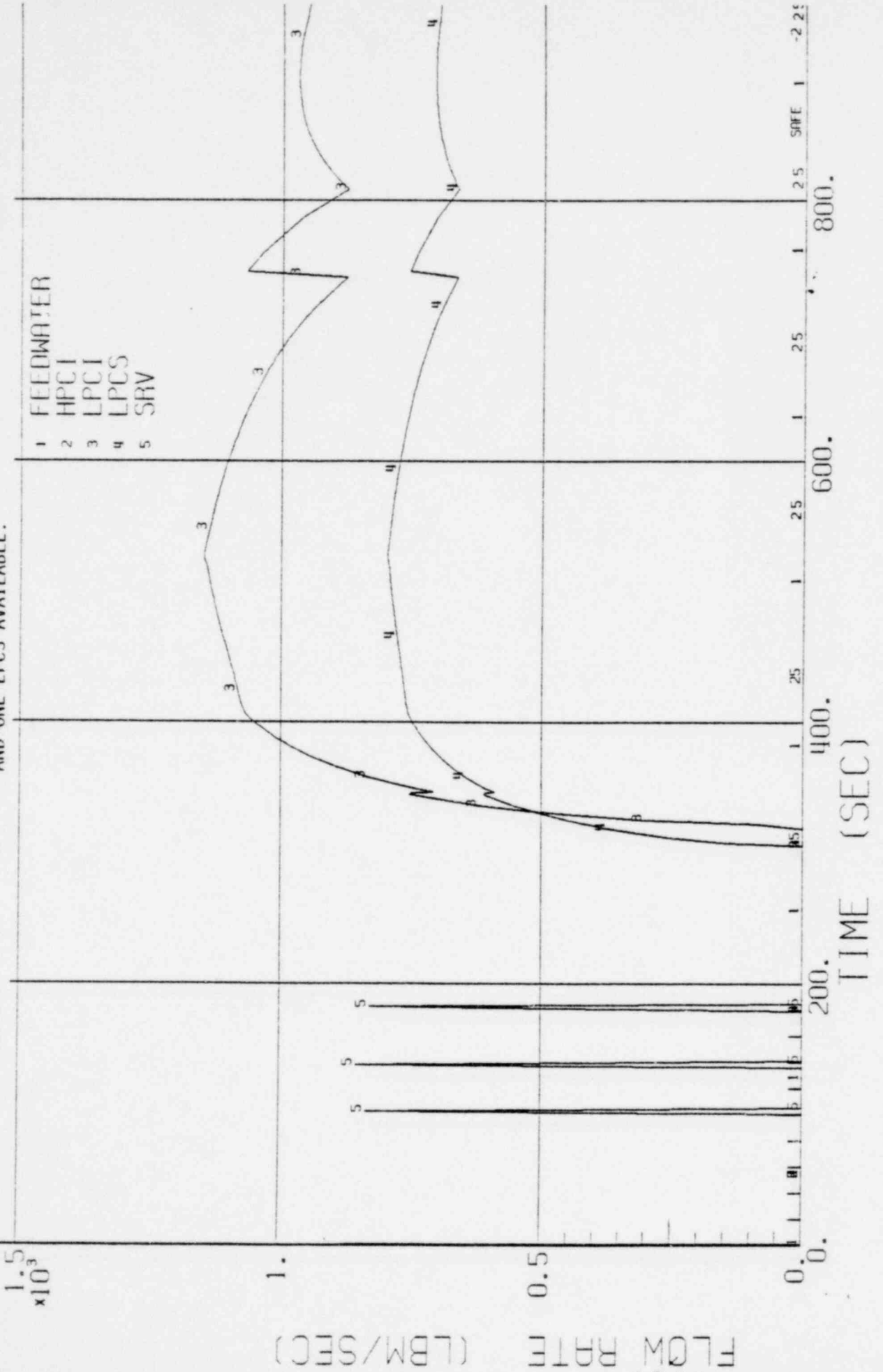
FIGURE 3.5.2.1 - 17.2 WATER LEVEL VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



1549 134

BWR/14-218

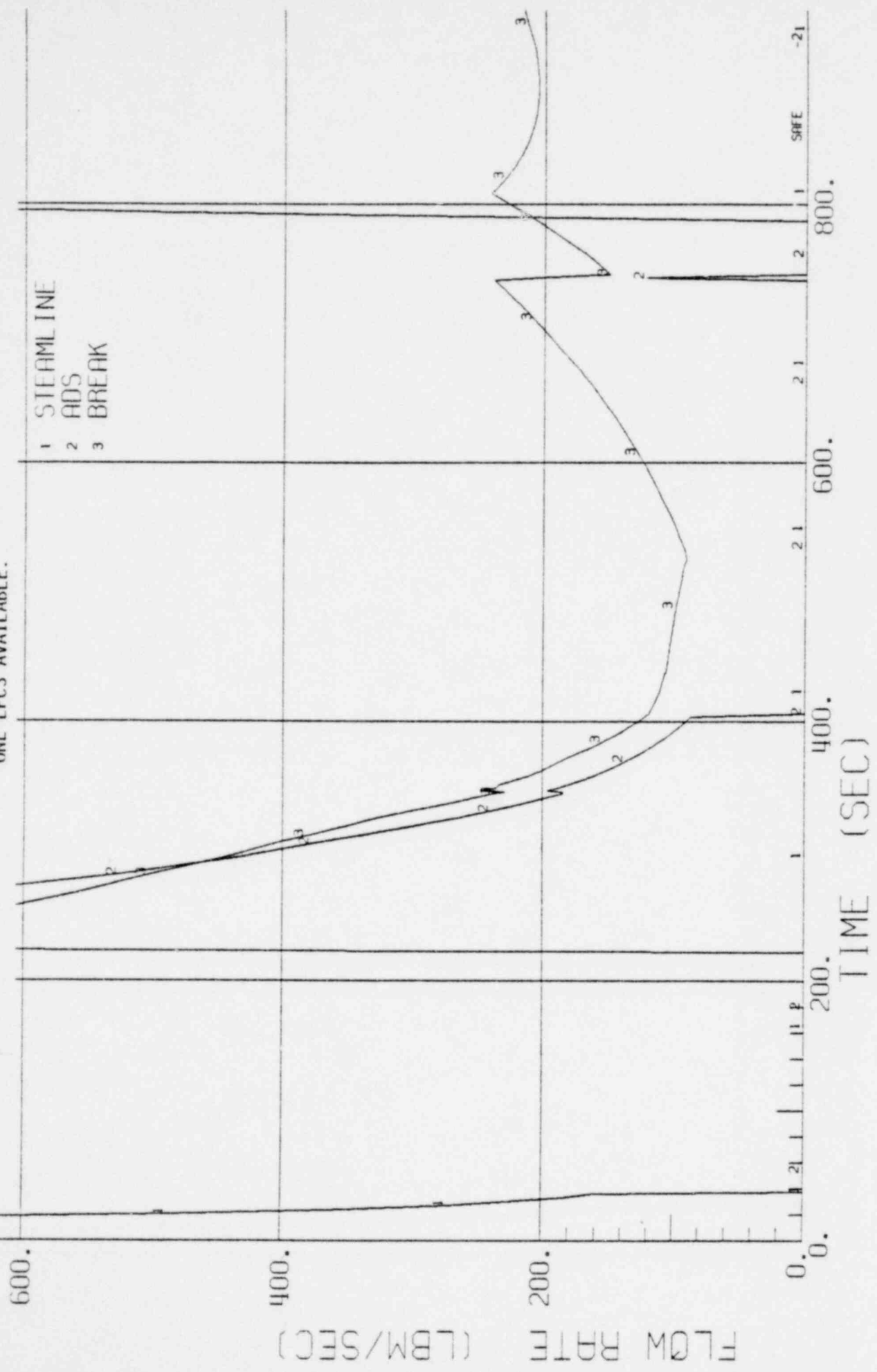
FIGURE 3.5.2.1 - 17.3 SYSTEM FLOW RATES VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



1549 135

BWR/4-218

FIGURE 3.5.2.1 - 17.4 FLOW RATES VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



FLOW RATE (LBM/SEC)

TIME (SEC)

BWR/11-218

FIGURE 3.5.2.1 - 17.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.

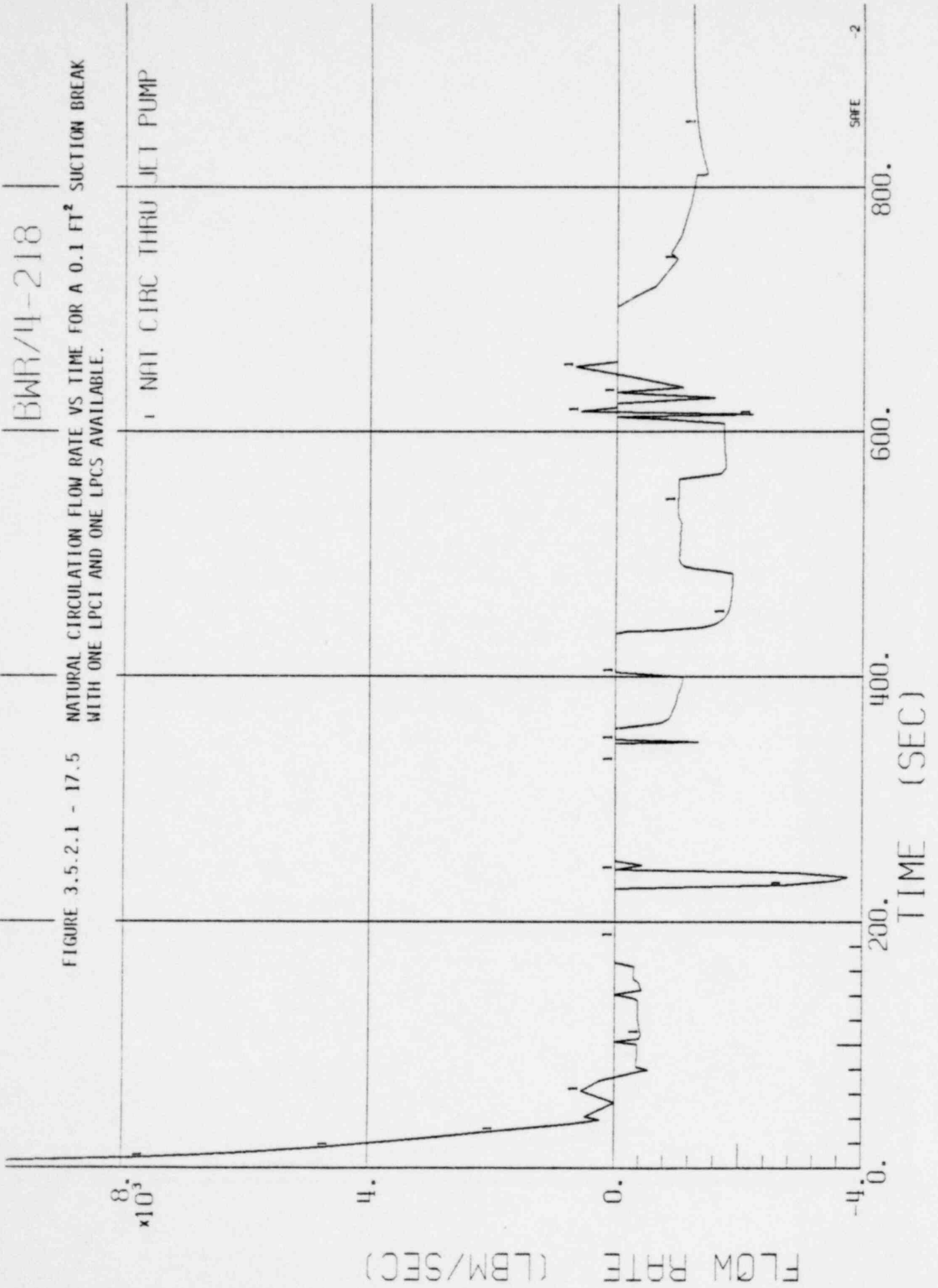
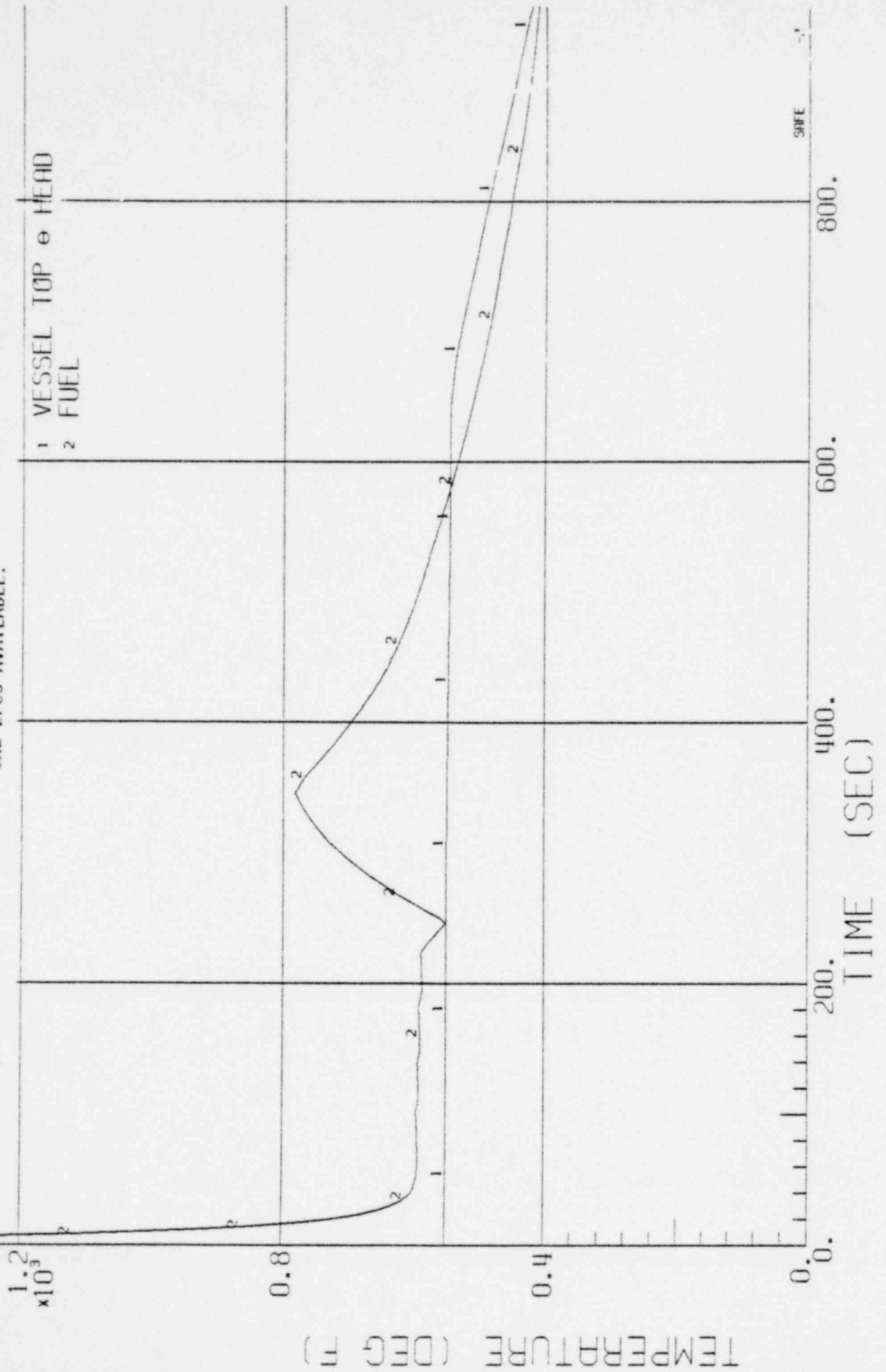
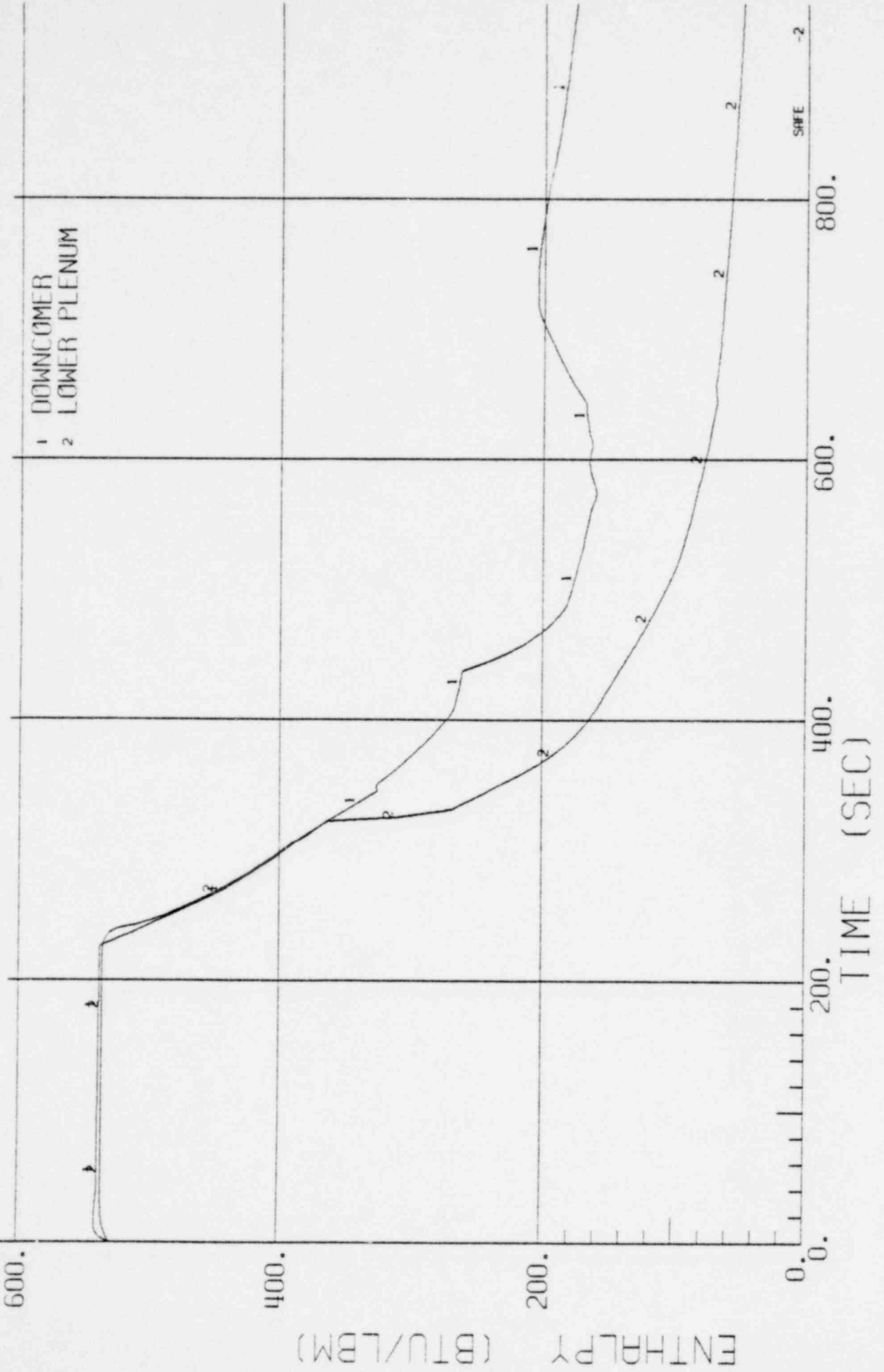


FIGURE 3.5.2.1 - 17.6 TEMPERATURE VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



BWR/4-218

FIGURE 3.5.2.1 - 17.7 ENTHALPY VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



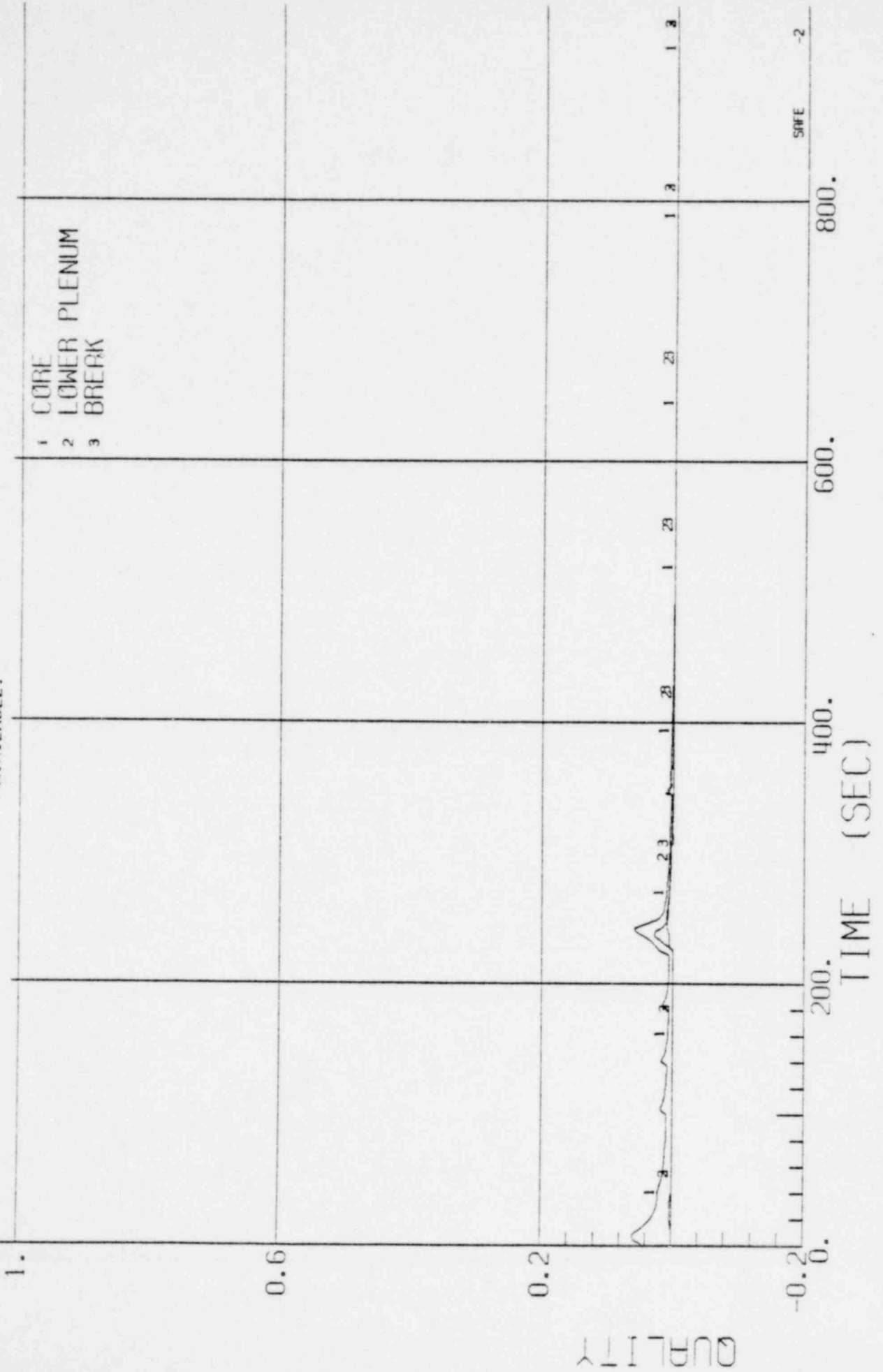
ENTHALPY (BTU/LBM)

SAFE -2

1549 139

BWR/4-218

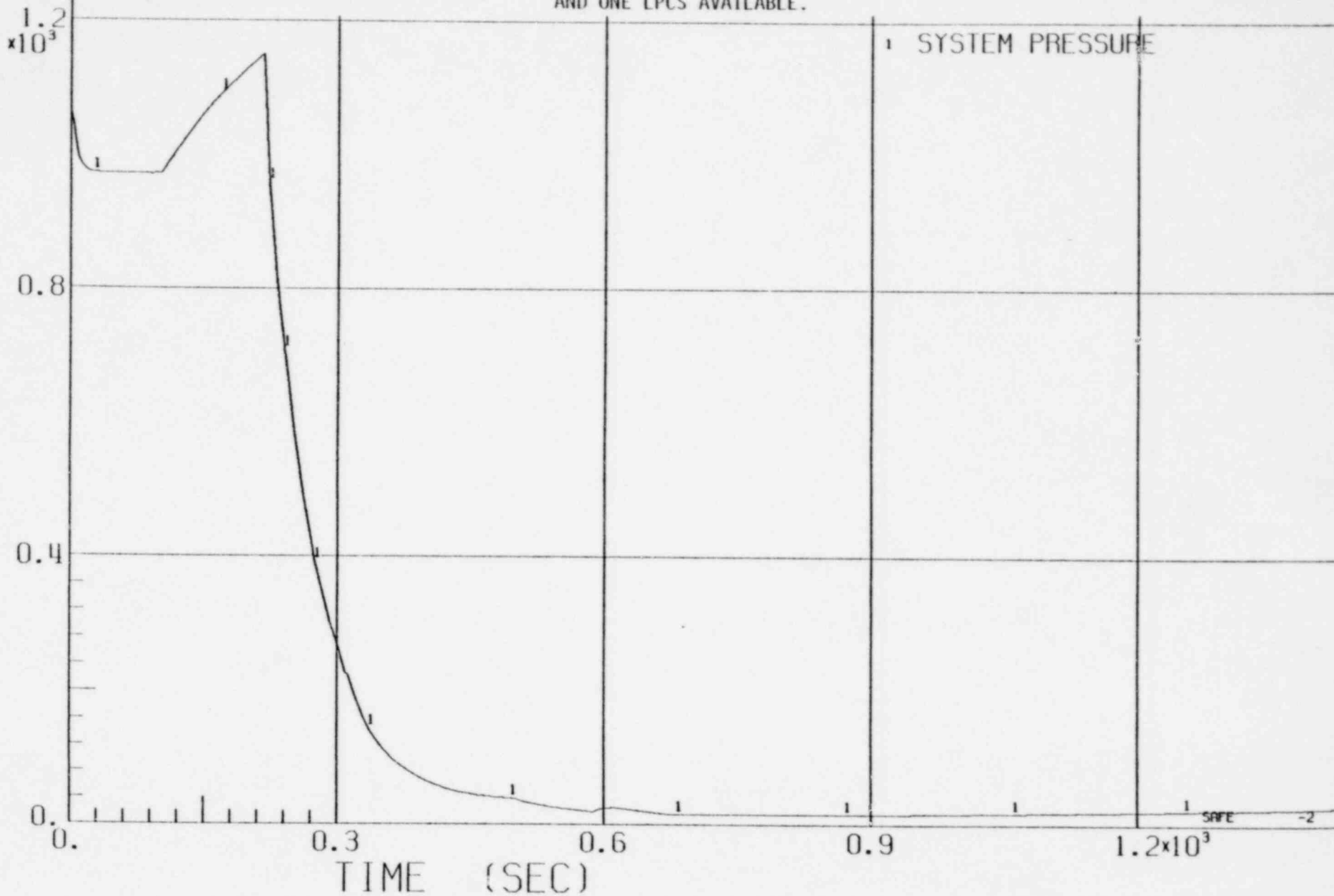
FIGURE 3.5.2.1 - 17.8 QUALITY VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AND LPCS AVAILABLE.



1549 140

BWR/6-218

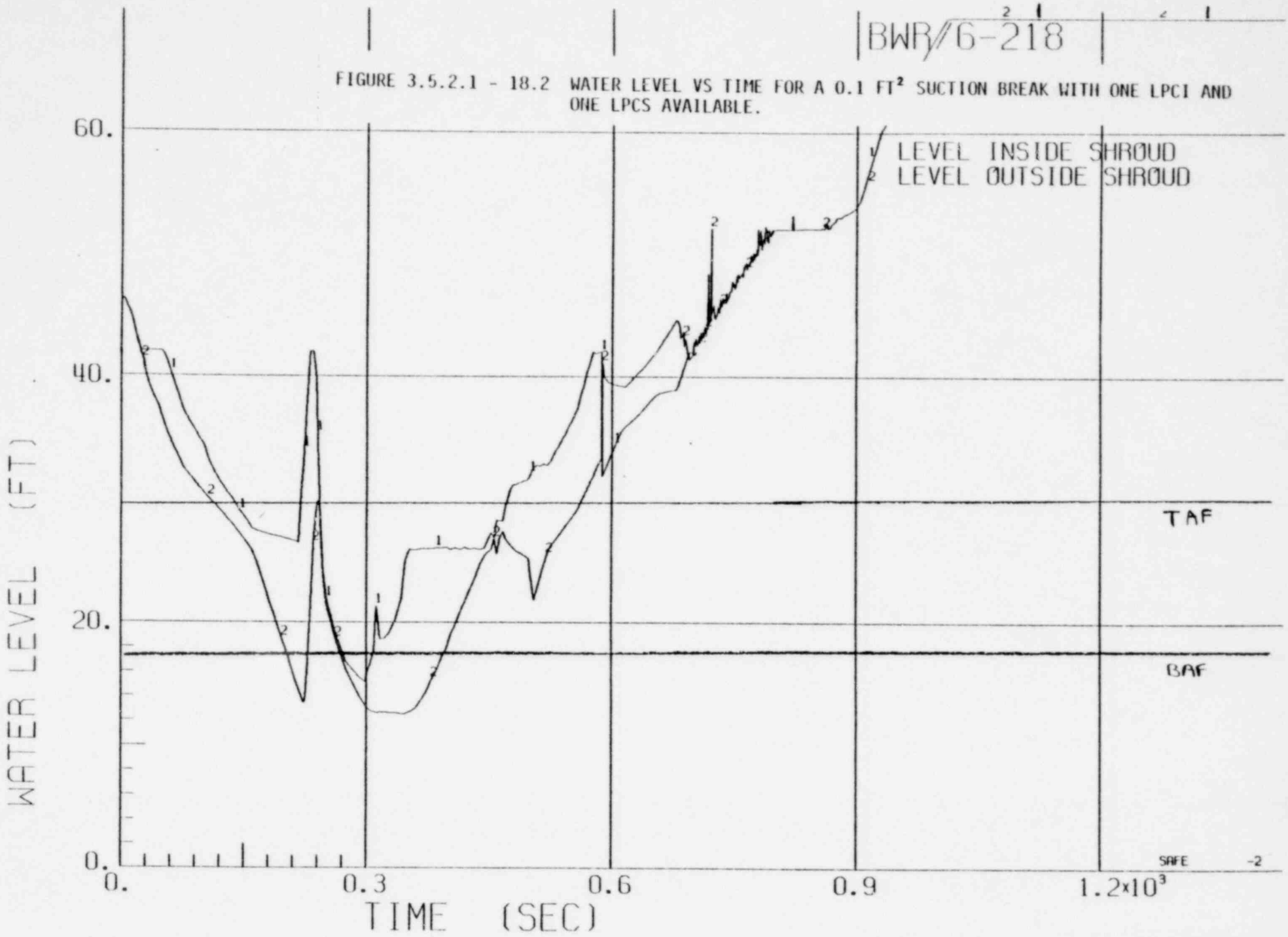
FIGURE 3.5.2.1 - 18.1 SYSTEM PRESSURE VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



1549 141
PRESSURE (PSIA)

BWR/6-218

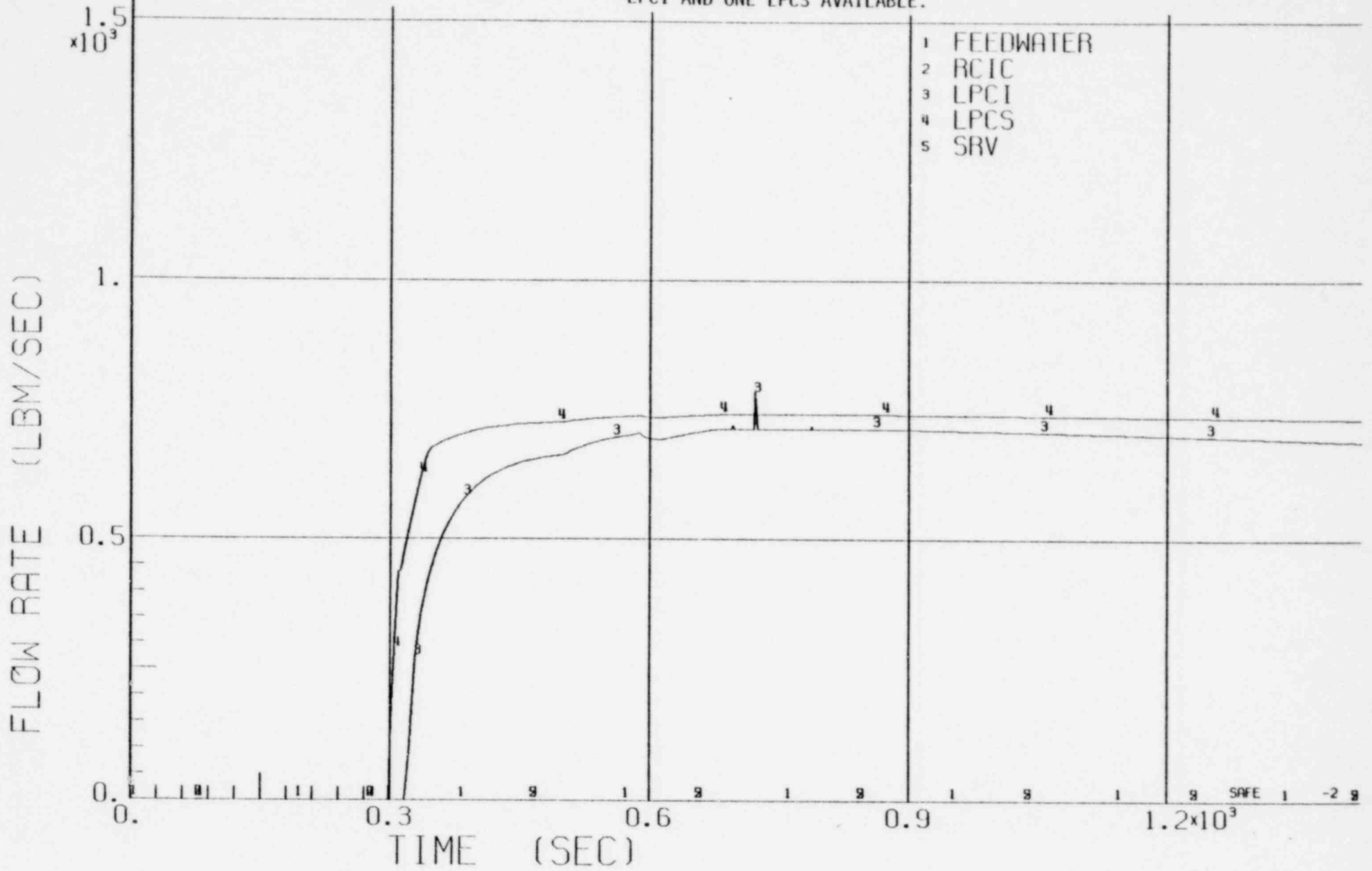
FIGURE 3.5.2.1 - 18.2 WATER LEVEL VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



1549 142

BWR/6-218

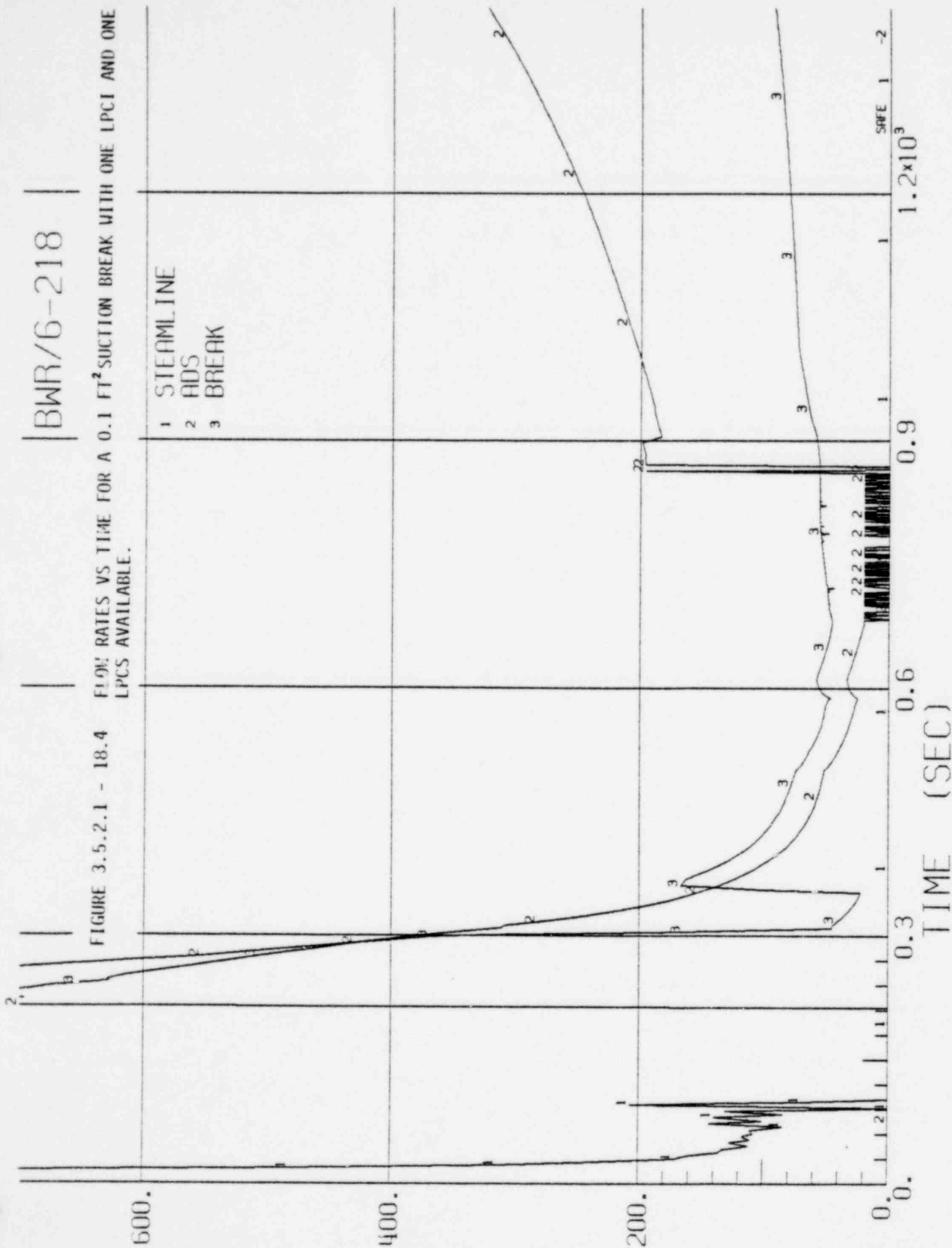
FIGURE 3.5.2.1 - 18.3 SYSTEM FLOW RATES VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



1549 143

BWR/6-218

FIGURE 3.5.2.1 - 18.4 FLOW RATES VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



1 STEAMLINE
2 ADS
3 BREAK

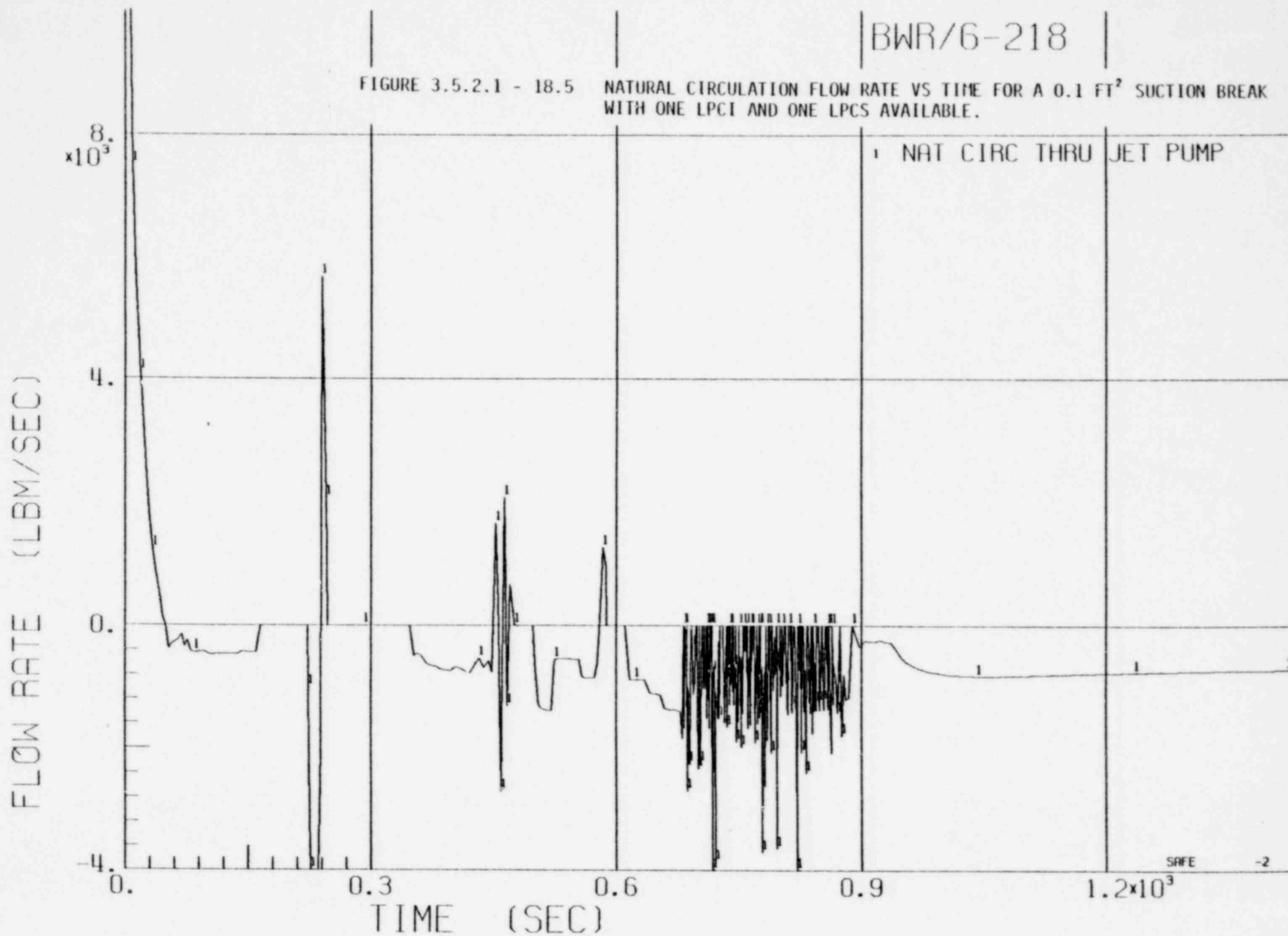
FLOW RATE (LBM/SEC)

TIME (SEC)

1549 144

BWR/6-218

FIGURE 3.5.2.1 - 18.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



NAT CIRC THRU JET PUMP

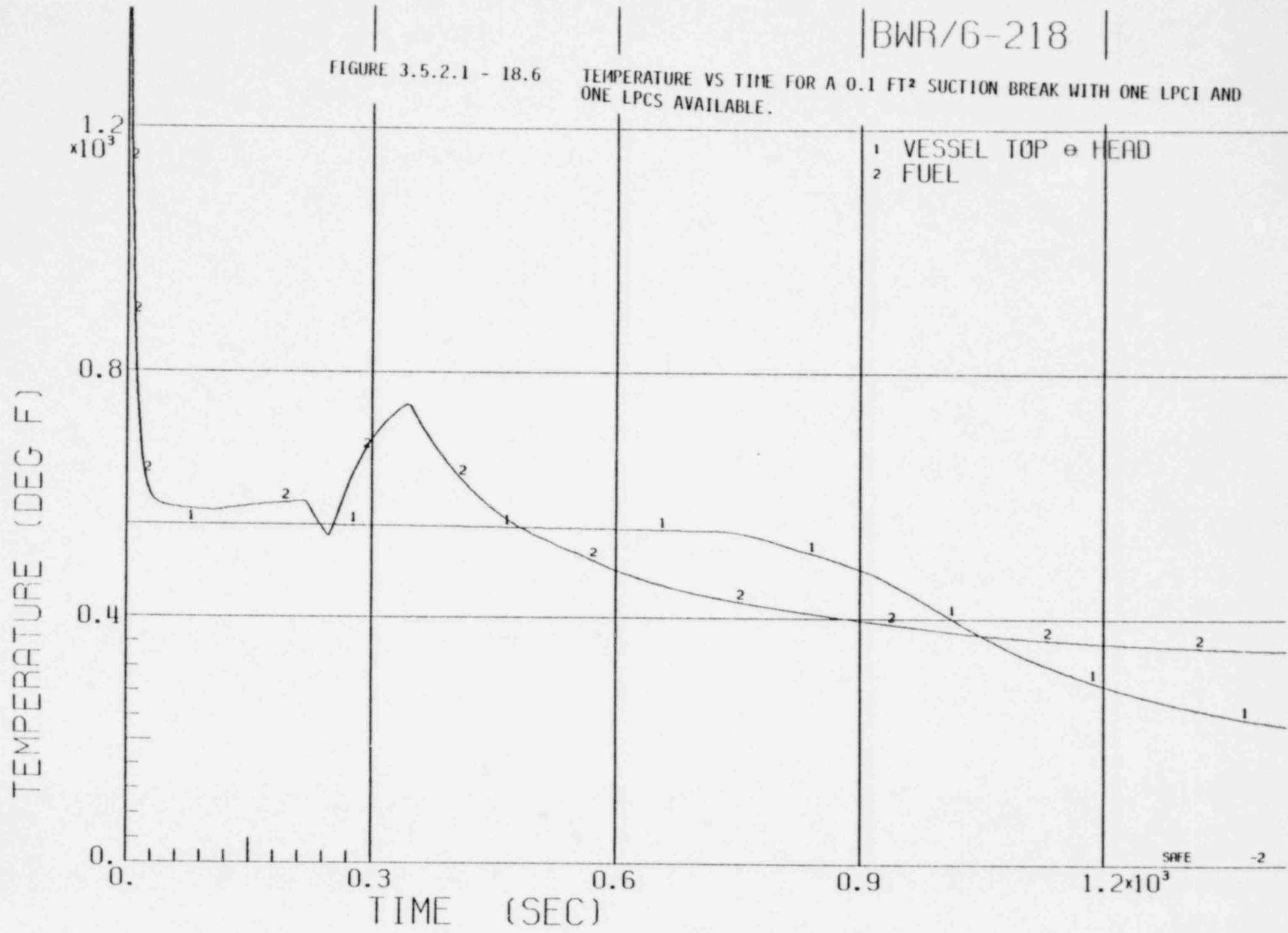
SAFE

-2

1549 145

BWR/6-218

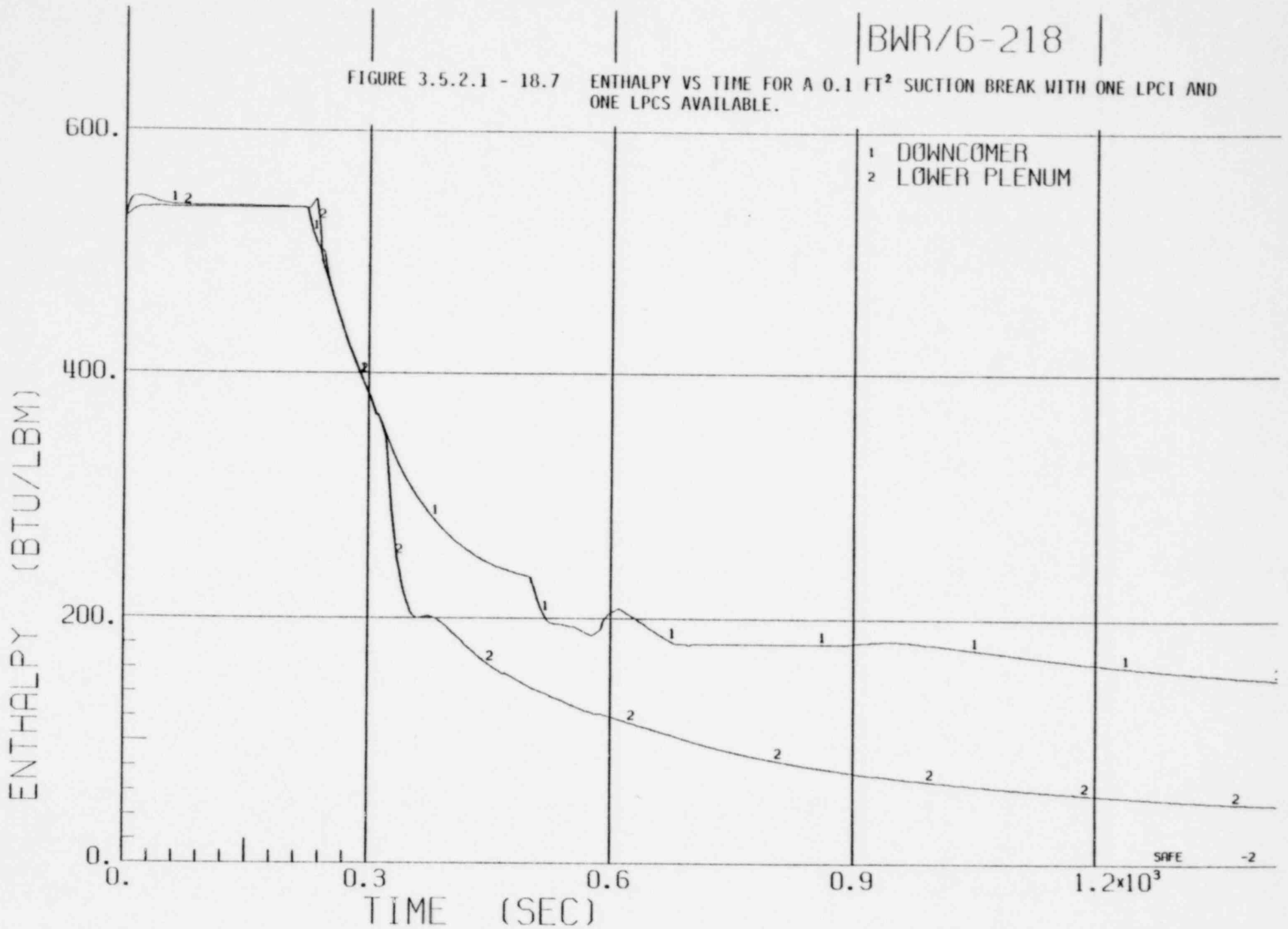
FIGURE 3.5.2.1 - 18.6 TEMPERATURE VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



1549 146

BWR/6-218

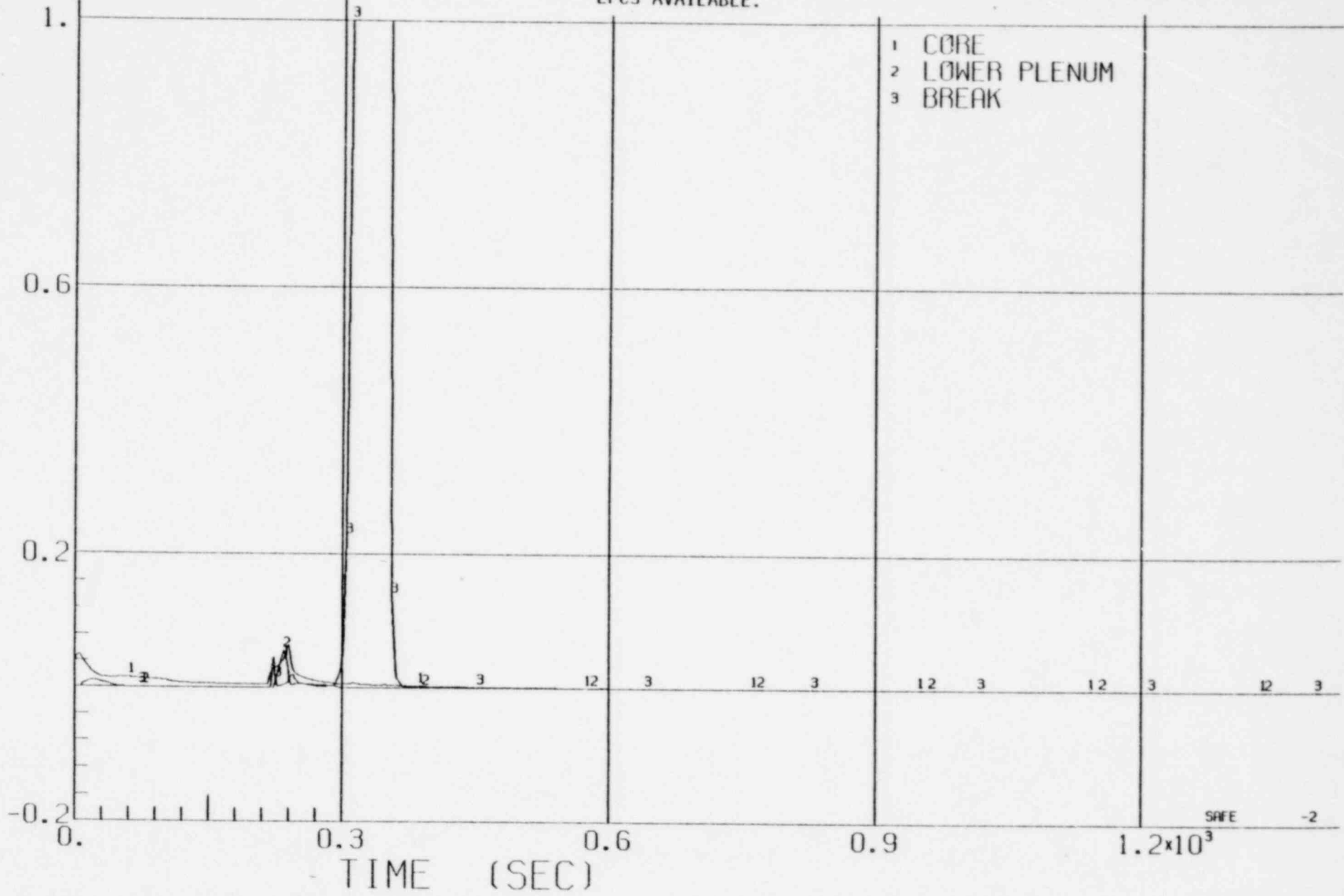
FIGURE 3.5.2.1 - 18.7 ENTHALPY VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



1549 147

BWR/6-218

FIGURE 3.5.2.1 - 18.8 QUALITY VS TIME FOR A 0.1 FT² SUCTION BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.

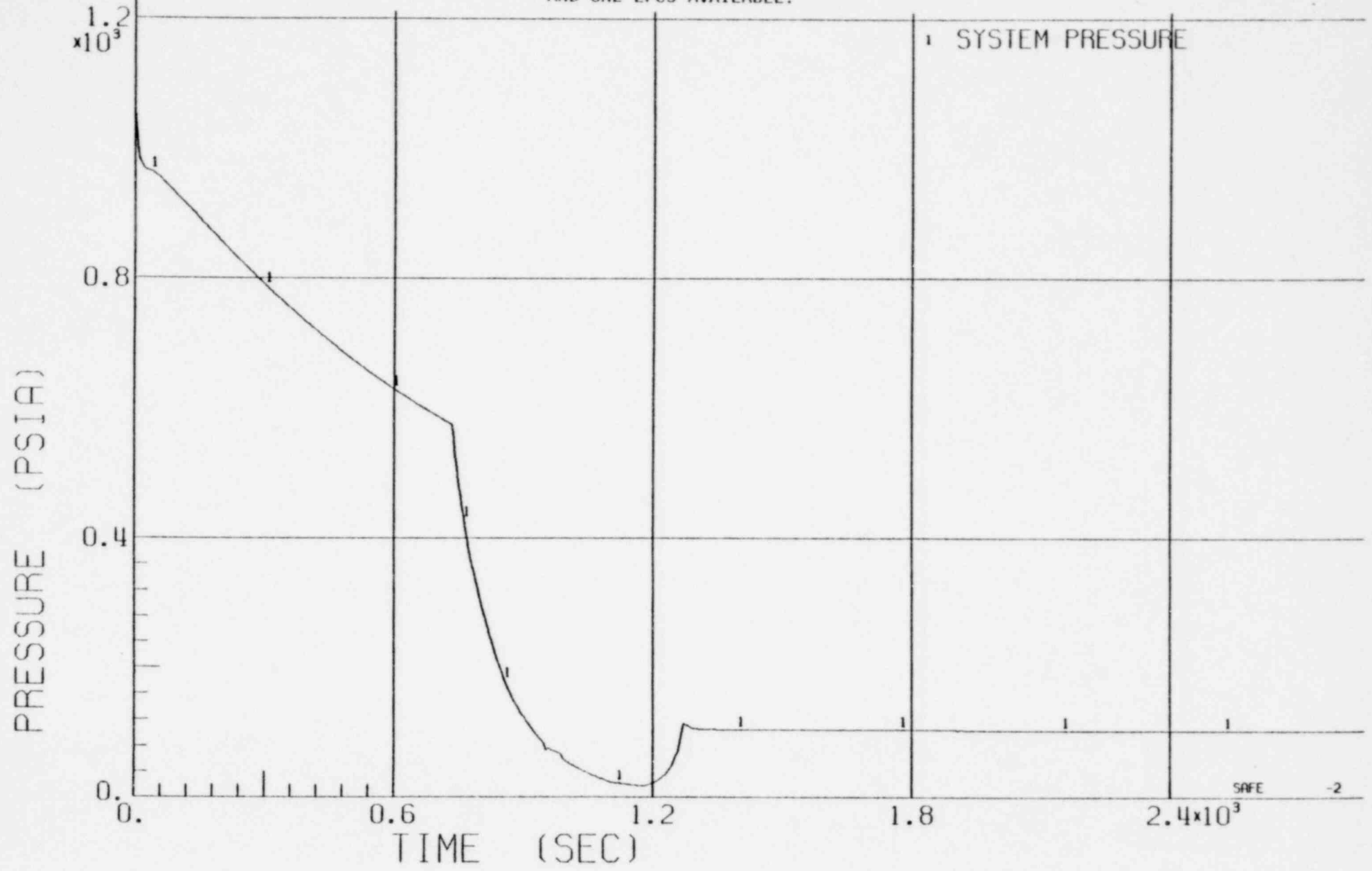


1549 148

QUALITY

BWR/4-218

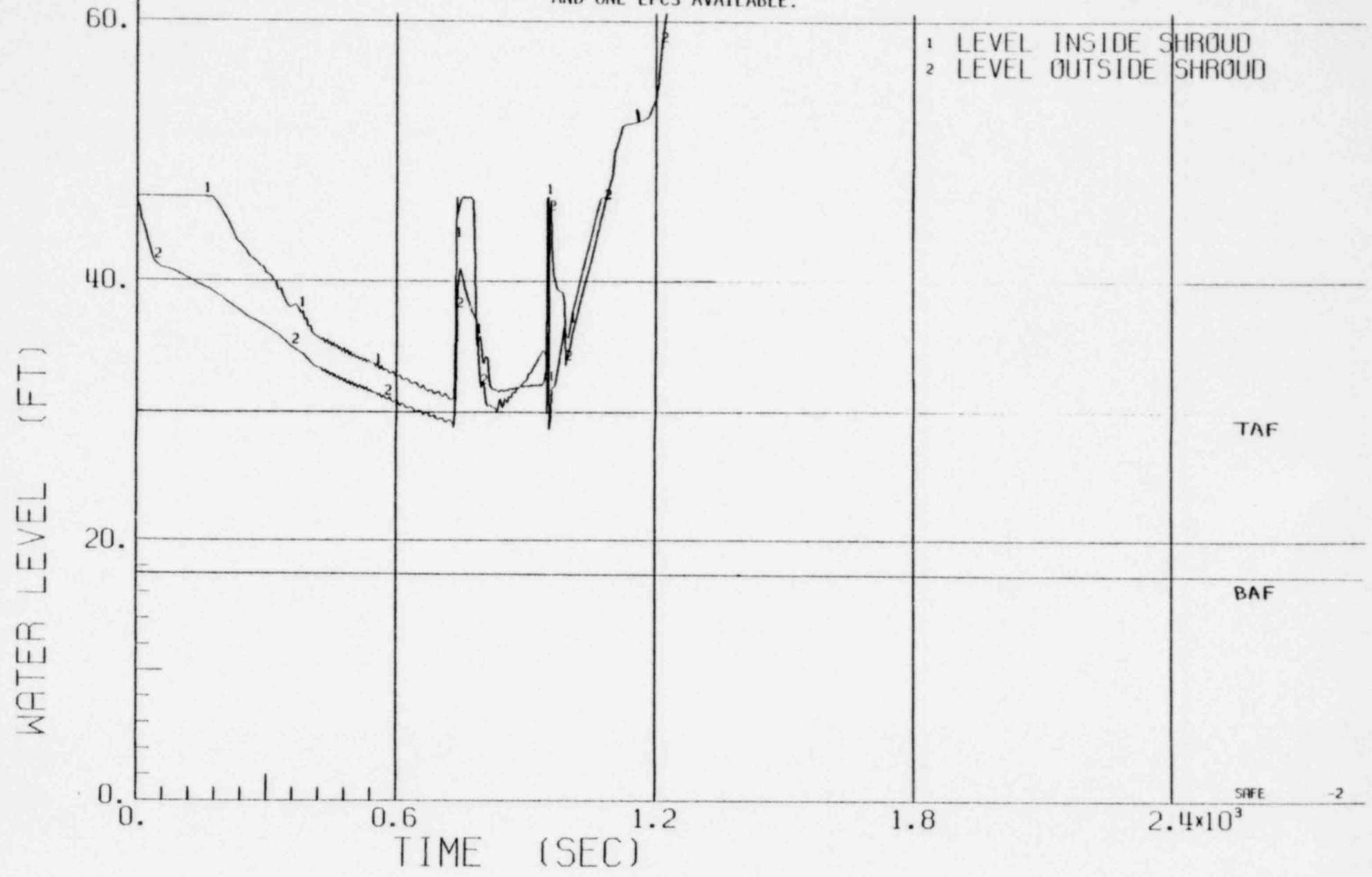
FIGURE 3.5.2.1 - 19.1 SYSTEM PRESSURE VS TIME FOR A 0.1 FT² STEAMLINE BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



1549 149

BWR/4-218

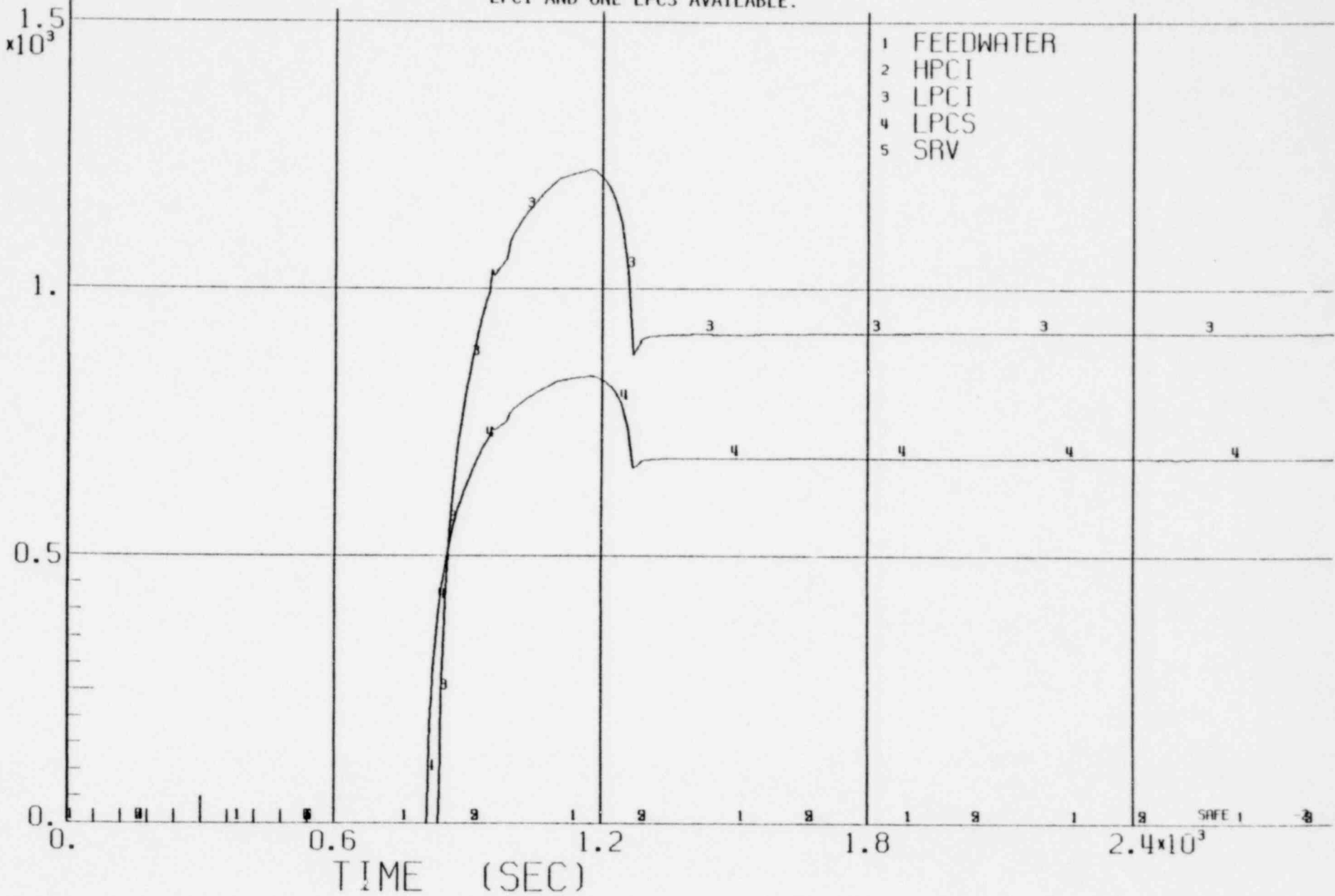
FIGURE 3.5.2.1 - 19.2 WATER LEVEL VS TIME FOR A 0.1 FT² STEAMLINE BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



1549 150

BWR/4-218

FIGURE 3.5.2.1 - 19.3 SYSTEM FLOW RATES VS TIME FOR A 0.1 FT² STEAMLINE BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



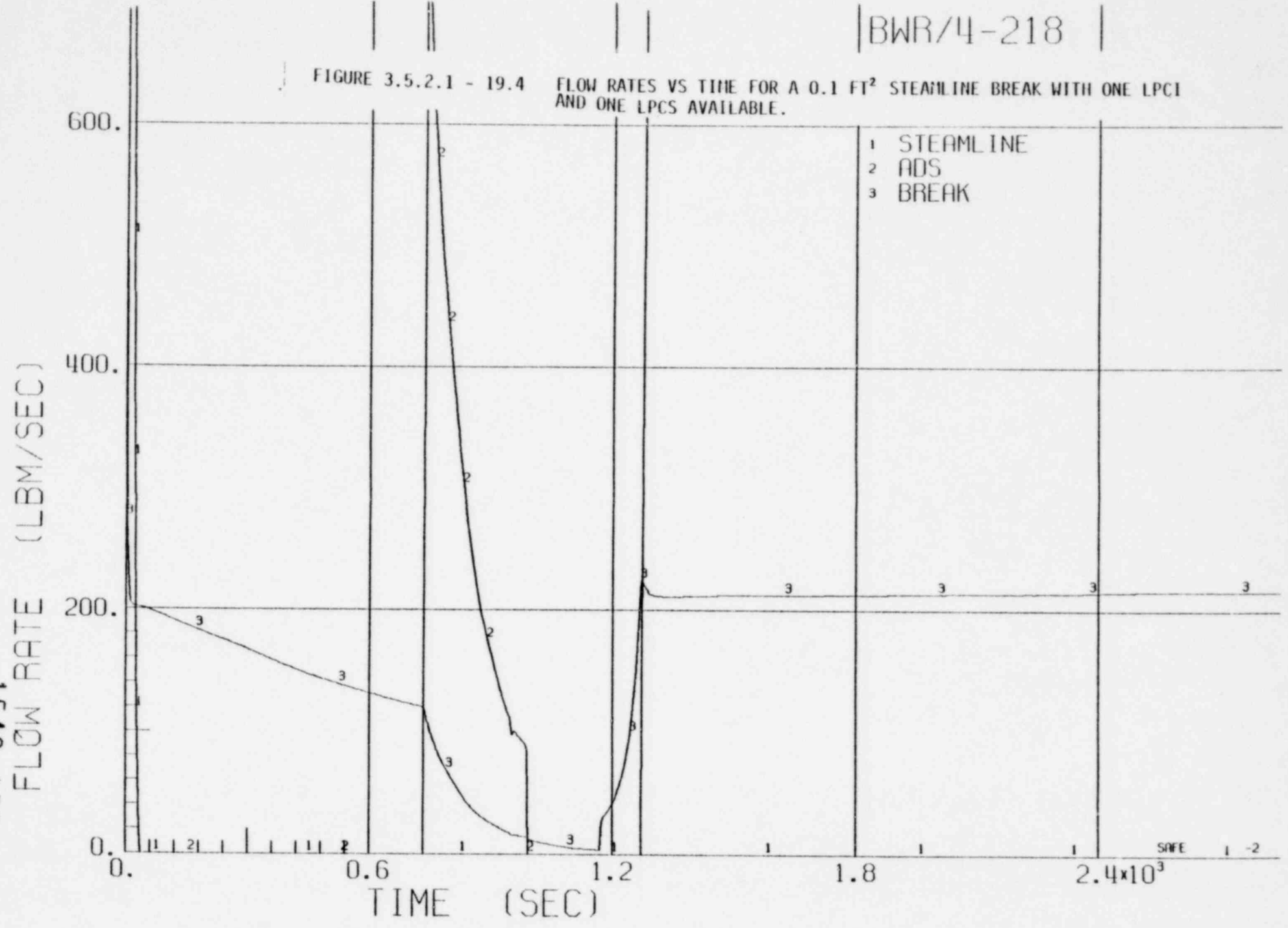
1549 151

FLOW RATE (LBM/SEC)

SAFE 1

BWR/4-218

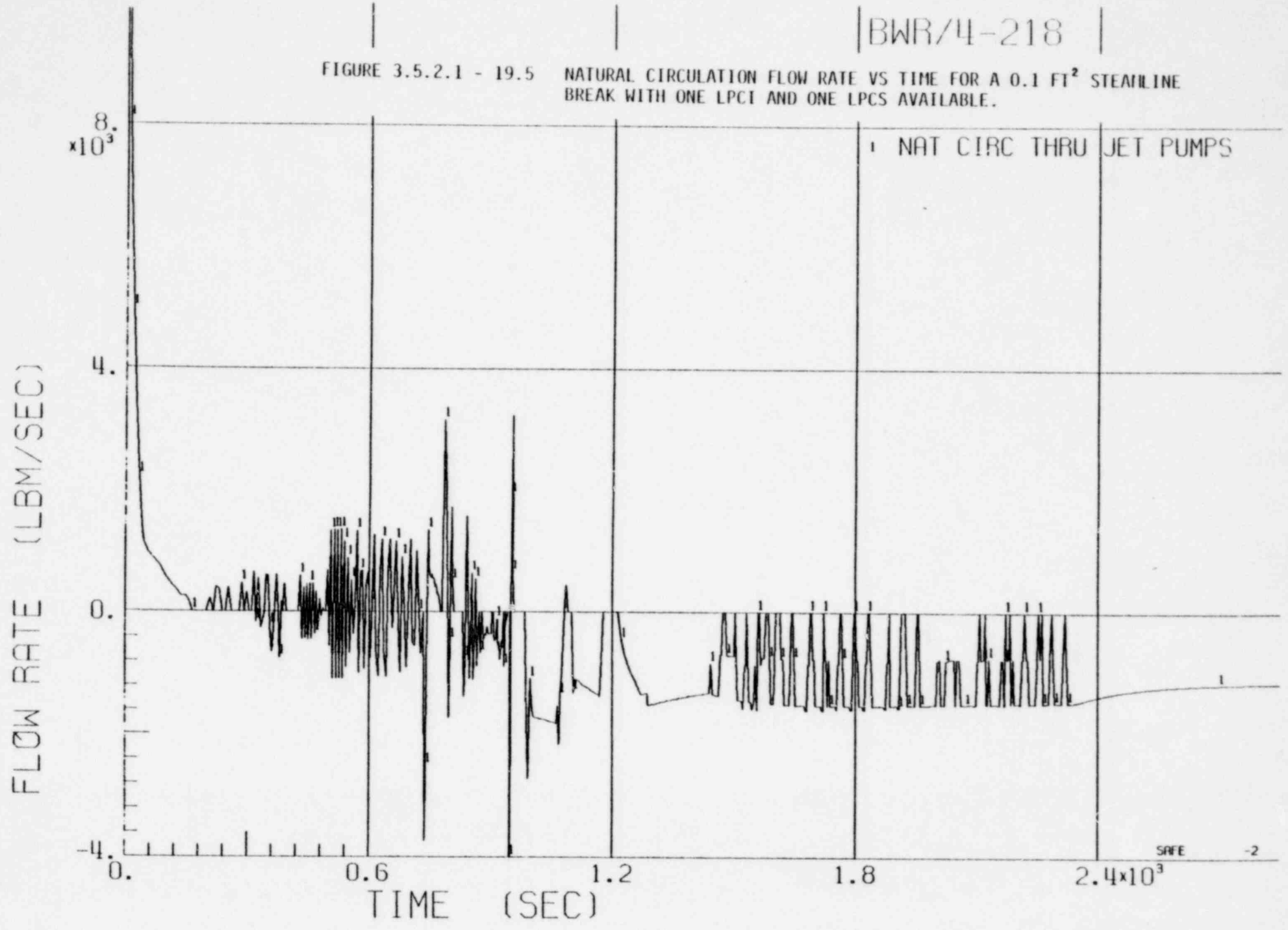
FIGURE 3.5.2.1 - 19.4 FLOW RATES VS TIME FOR A 0.1 FT² STEAMLINE BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



1549 152

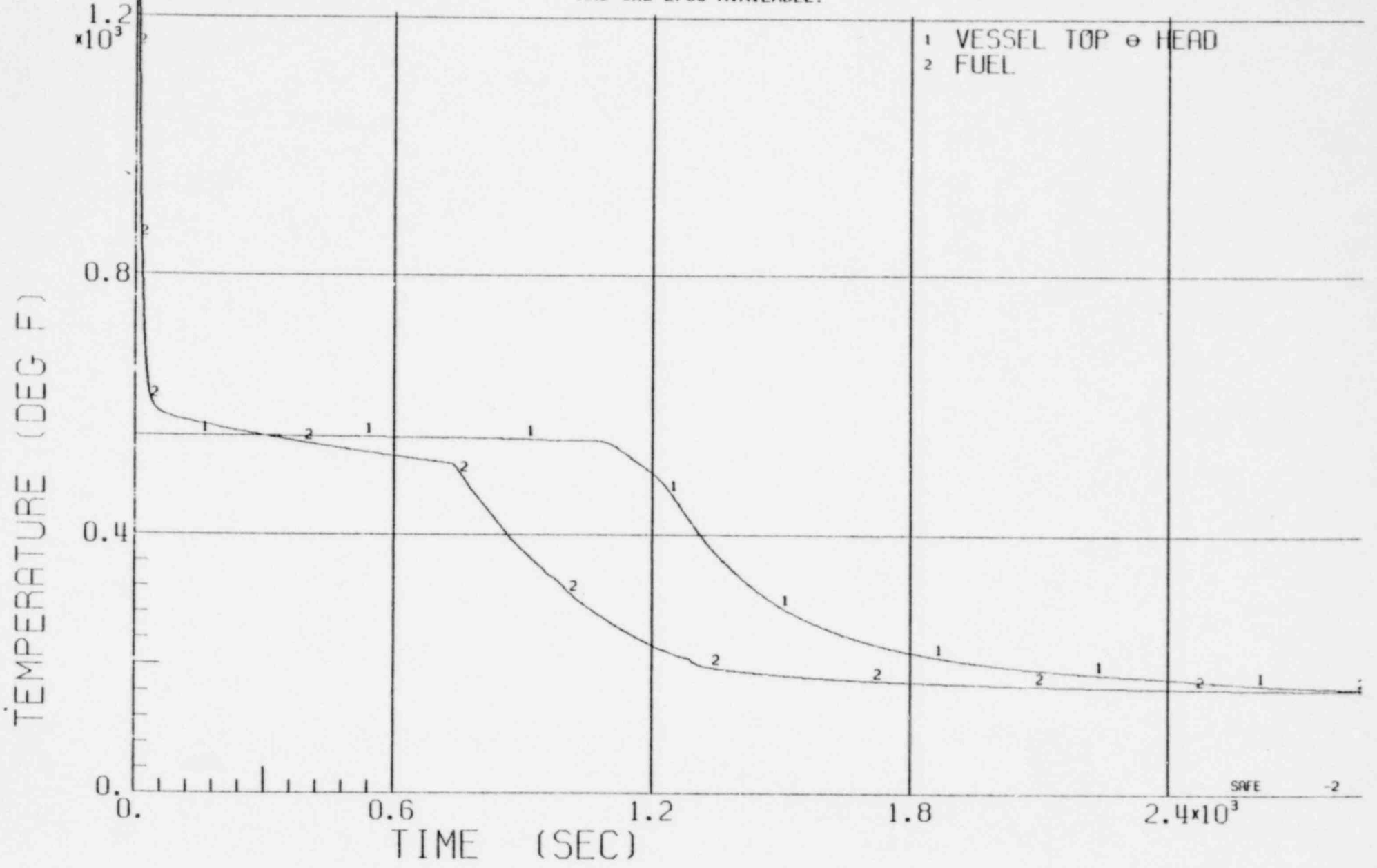
BWR/4-218

FIGURE 3.5.2.1 - 19.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.1 FT² STEAMLINE BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



1549 153

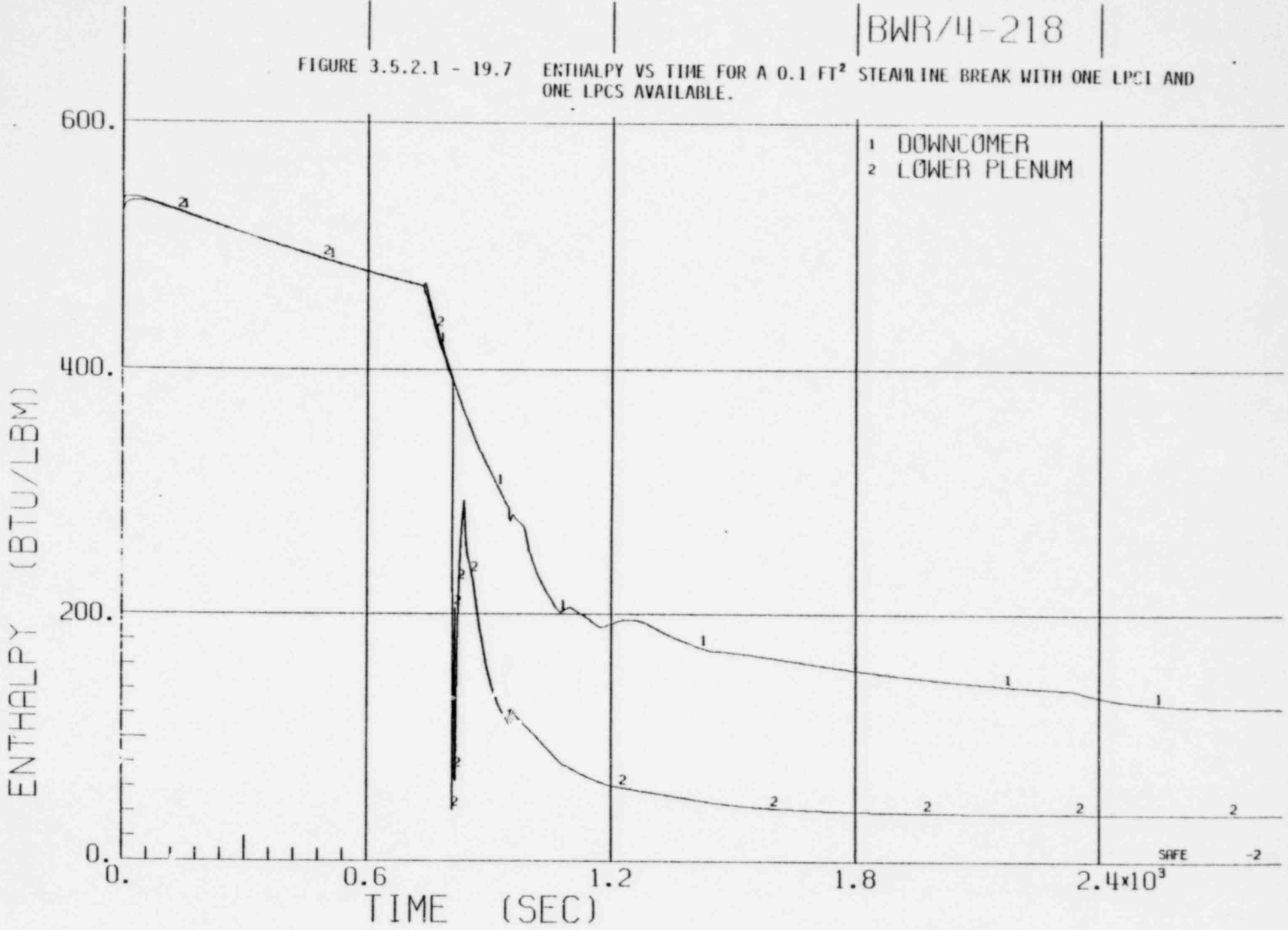
FIGURE 3.5.2.1 - 19.6 TEMPERATURE VS TIME FOR A 0.1 FT² STEAMLINE BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



1549 154

BWR/4-218

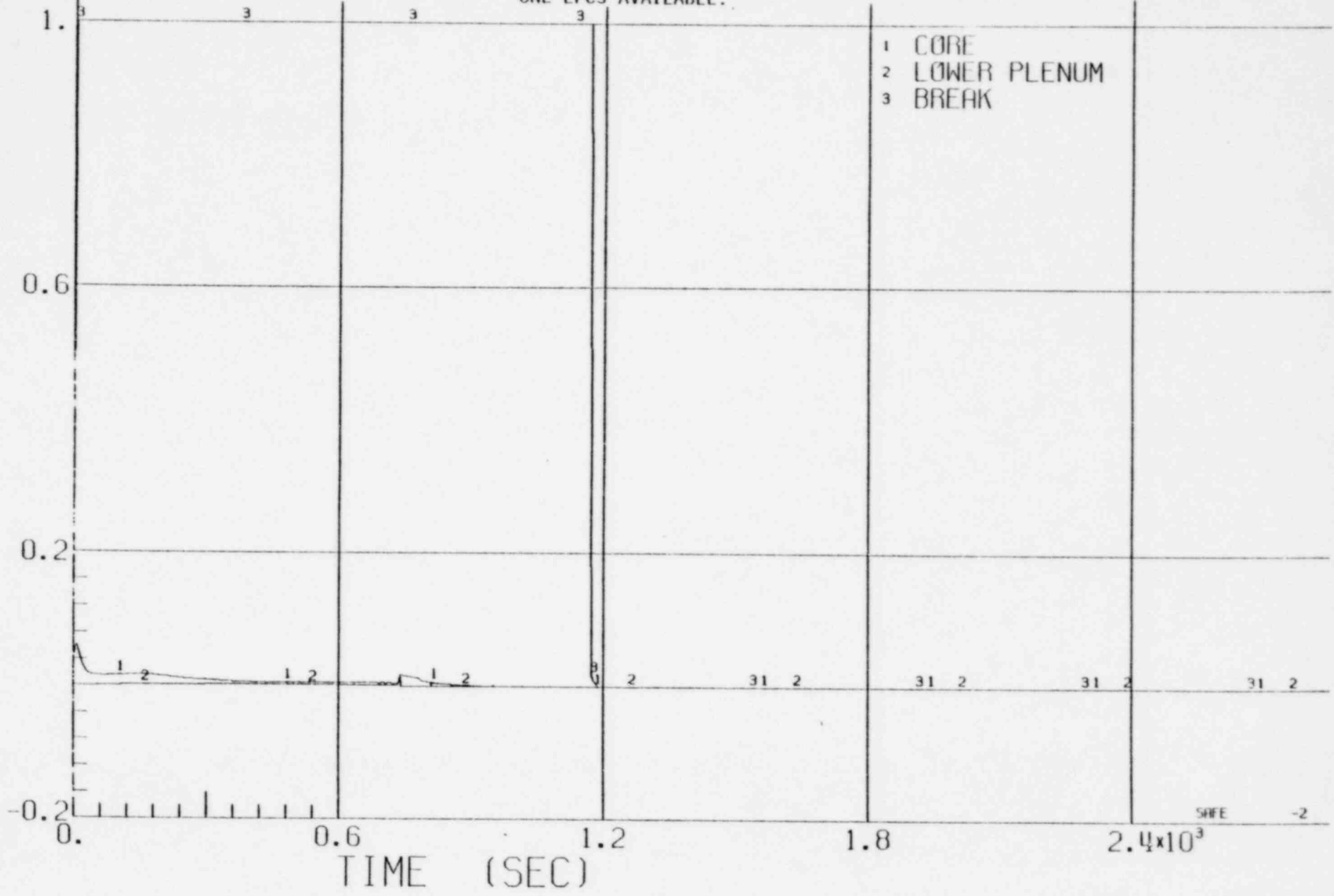
FIGURE 3.5.2.1 - 19.7 ENTHALPY VS TIME FOR A 0.1 FT² STEAMLINE BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



1549 155

BWR/4-218

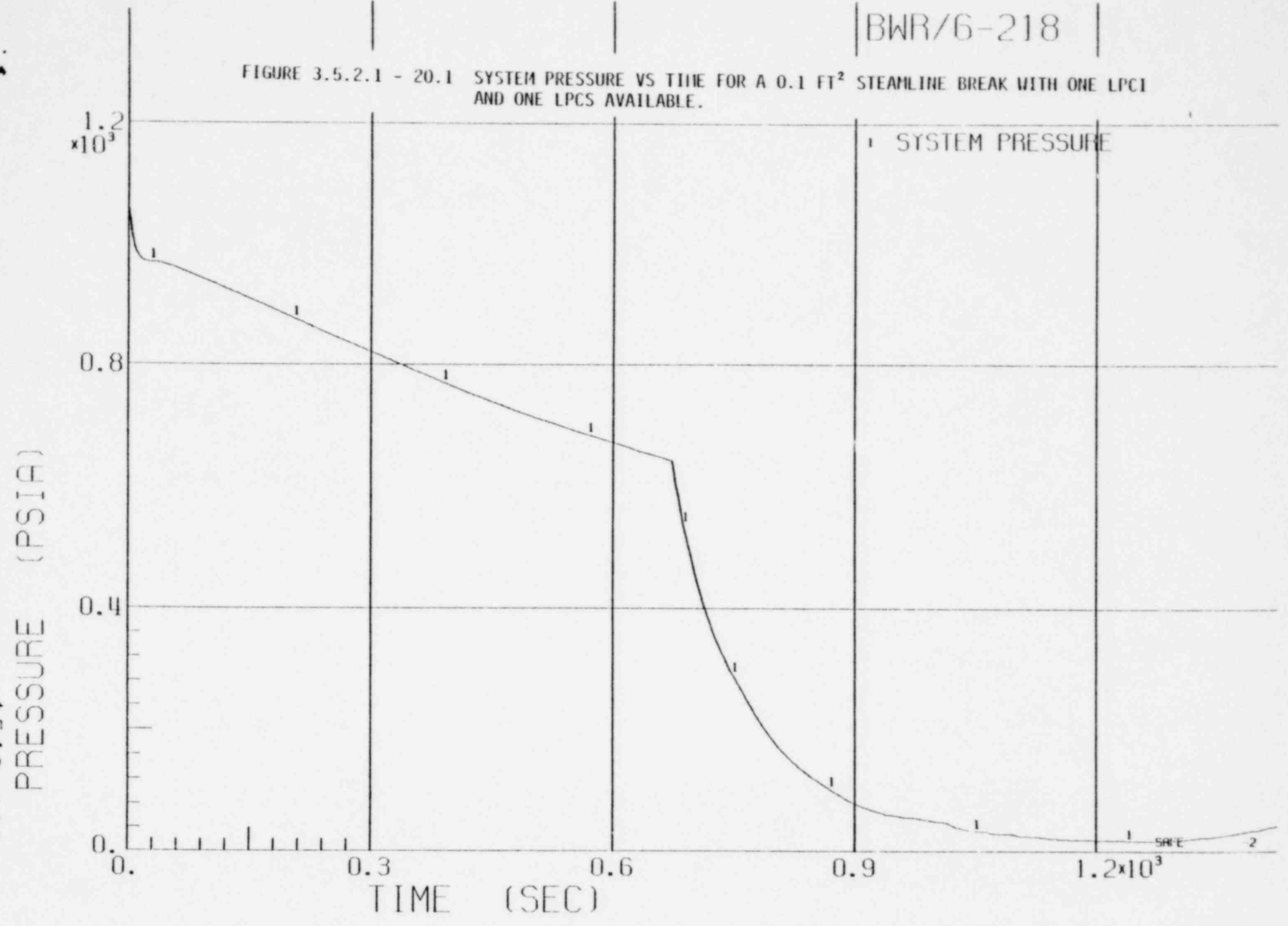
FIGURE 3.5.2.1 - 19.8 QUALITY VS TIME FOR A 0.1 FT² STEAMLINE BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



1549 156
QUALITY

BWR/6-218

FIGURE 3.5.2.1 - 20.1 SYSTEM PRESSURE VS TIME FOR A 0.1 FT² STEAMLINE BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



1549 157

SAVE 2

BWR/6-218

FIGURE 3.5.2.1 - 20.2 WATER LEVEL VS TIME FOR A 0.1 FT² STEAMLINE BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.

1 LEVEL INSIDE SHROUD
2 LEVEL OUTSIDE SHROUD

TAF

BAF

SAFE

1.2x10³

0.9

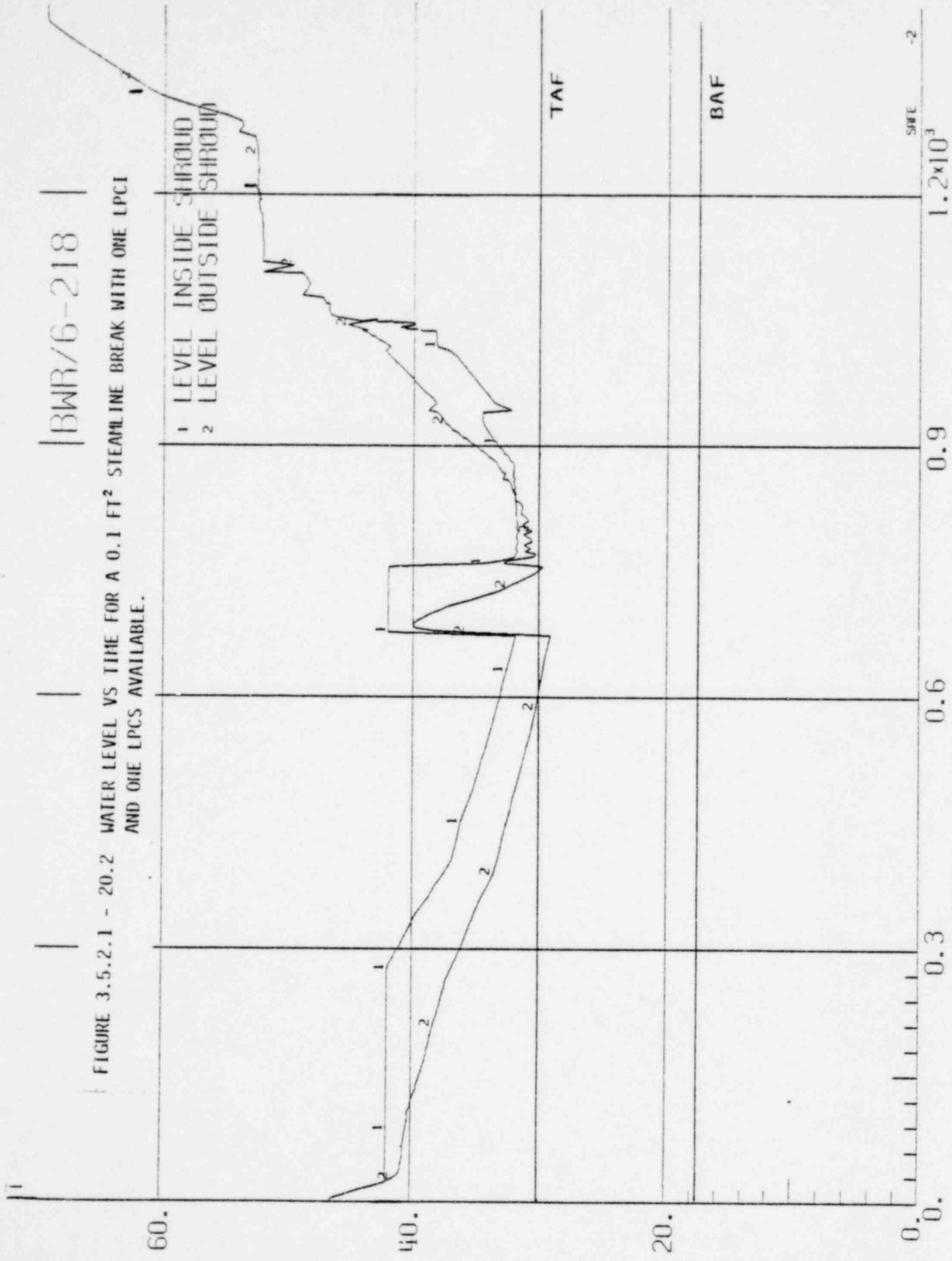
0.6

0.3

TIME (SEC)

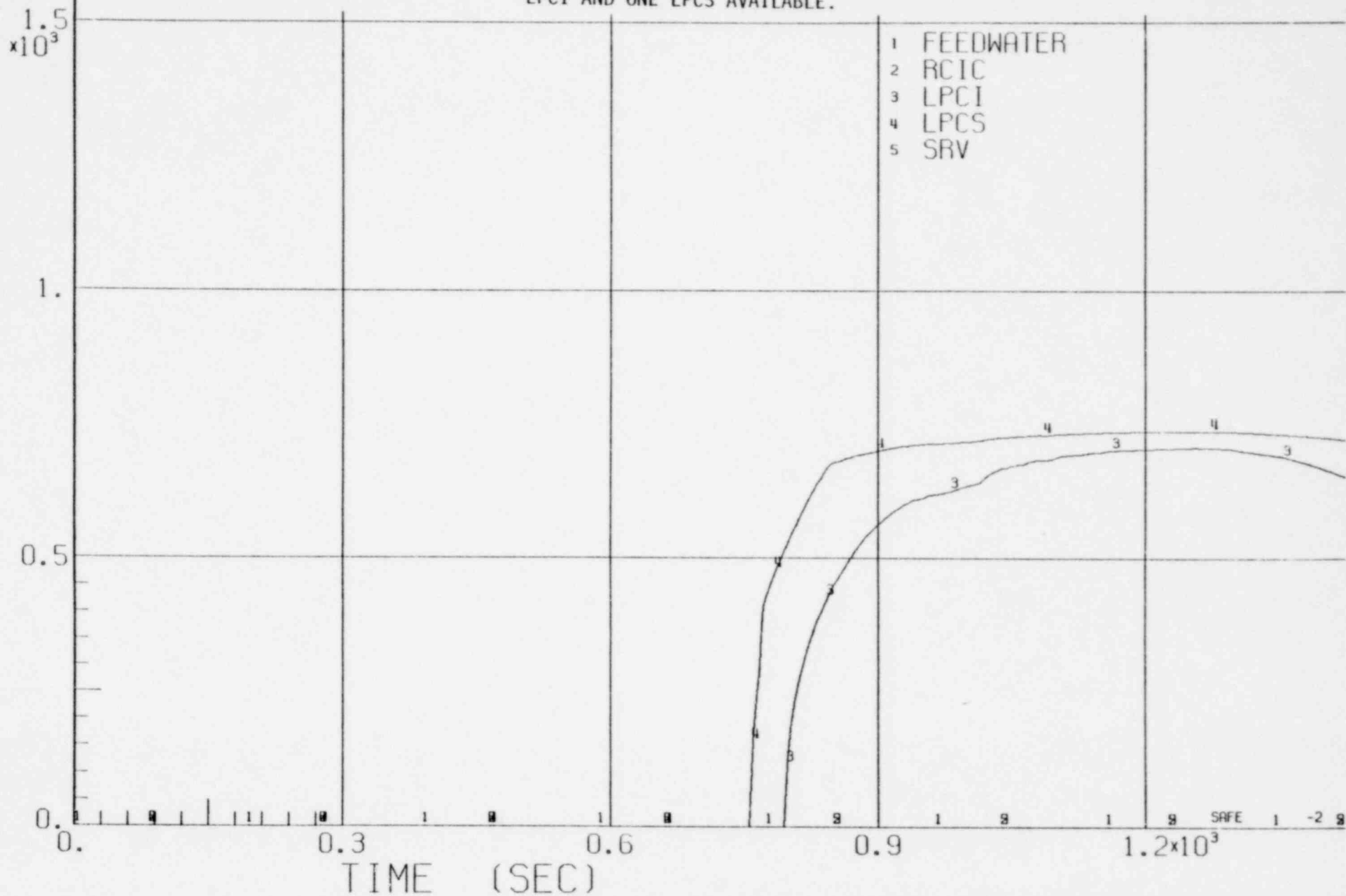
WATER LEVEL (FT)

1549 158



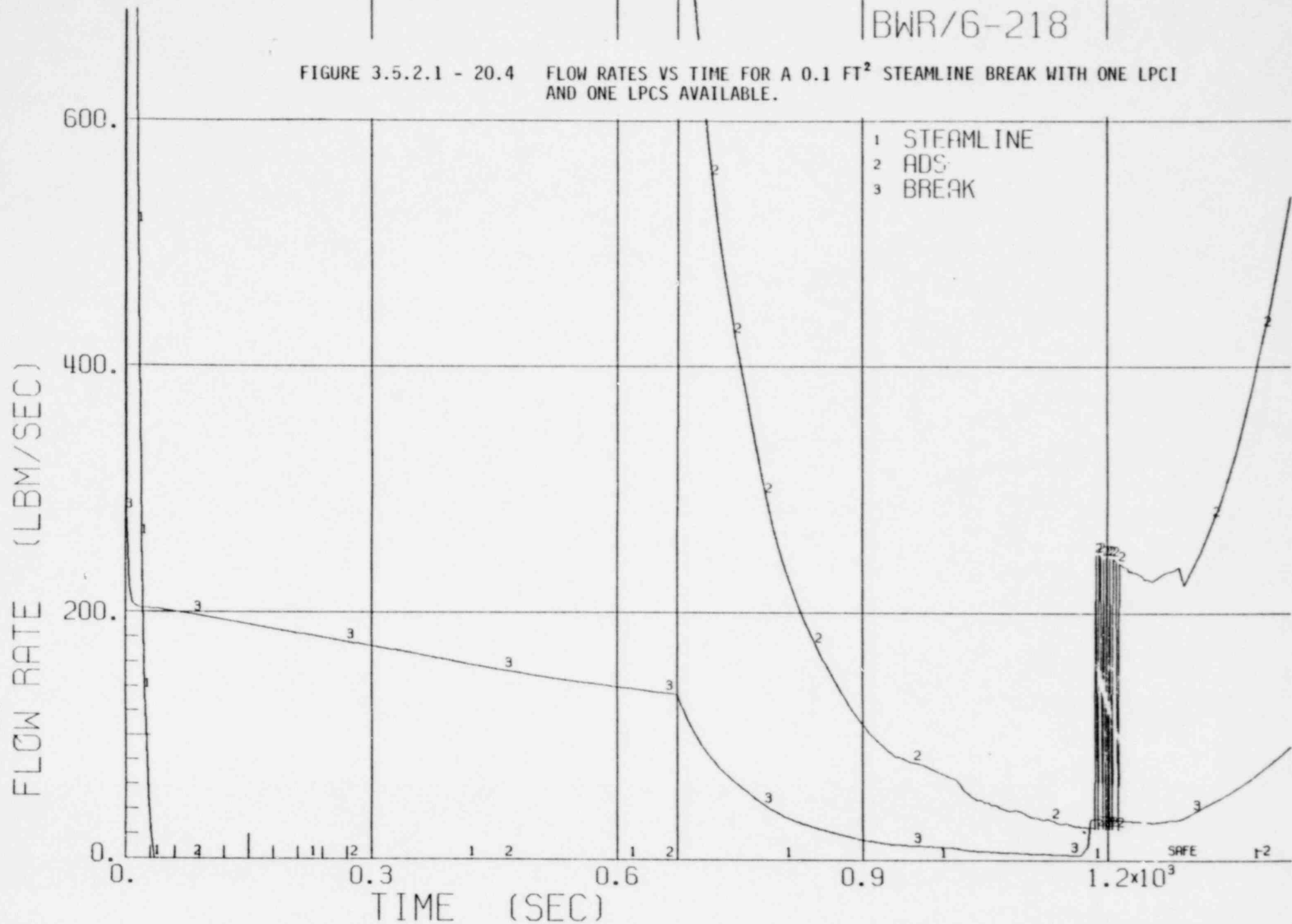
BWR/6-218

FIGURE 3.5.2.1 - 20.3 SYSTEM FLOW RATES VS TIME FOR A 0.1 FT² STEAMLINE BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



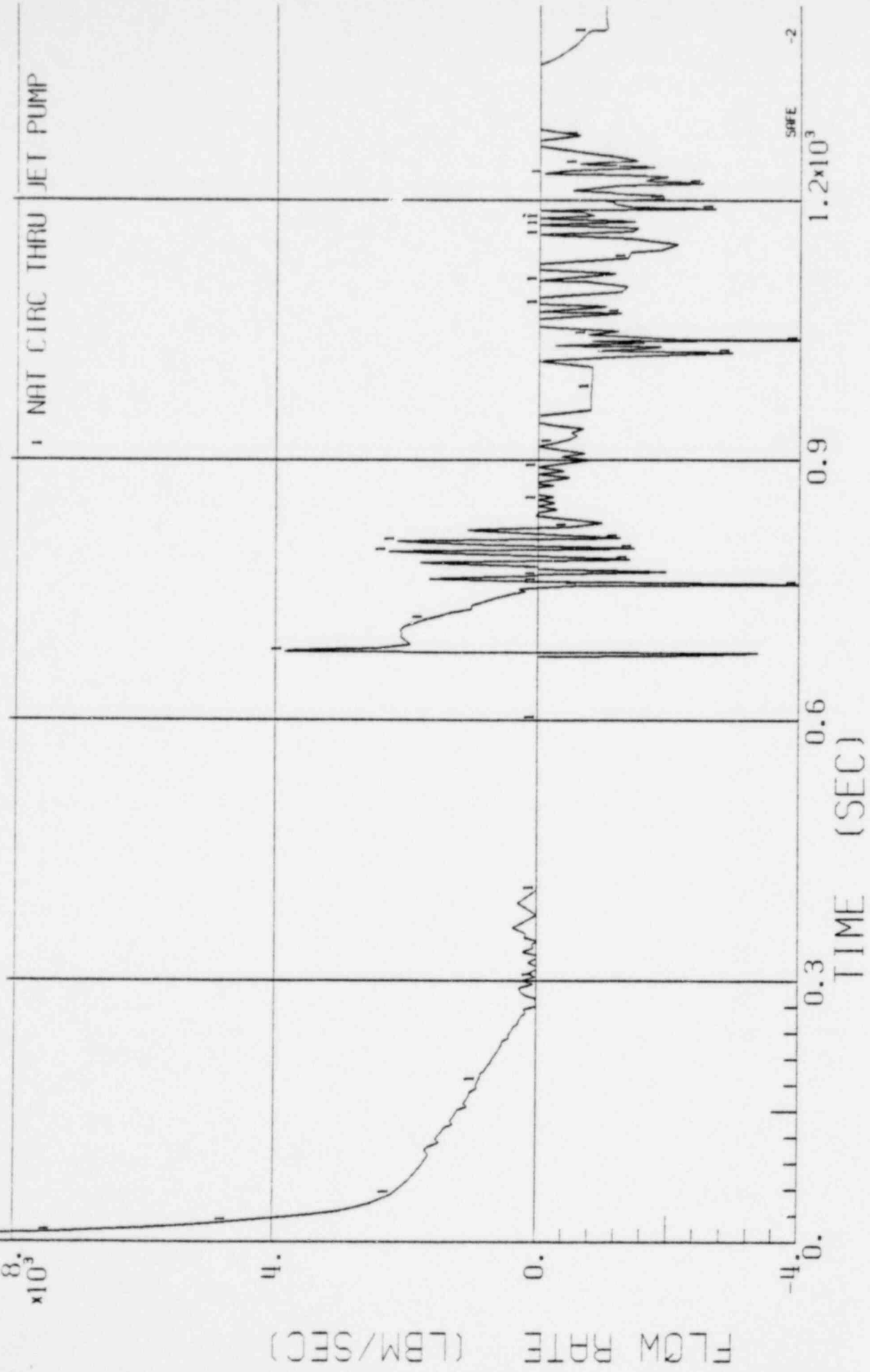
1549 159
FLOW RATE (LBM/SEC)
DATE M071

FIGURE 3.5.2.1 - 20.4 FLOW RATES VS TIME FOR A 0.1 FT² STEAMLINE BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



BWR/6-218

FIGURE 3.5.2.1 - 20.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.1 FT² STEAMLINE BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



FLOW RATE (LBM/SEC)

191 651

SAFE

1.2 x 10³

0.9

0.6

0.3

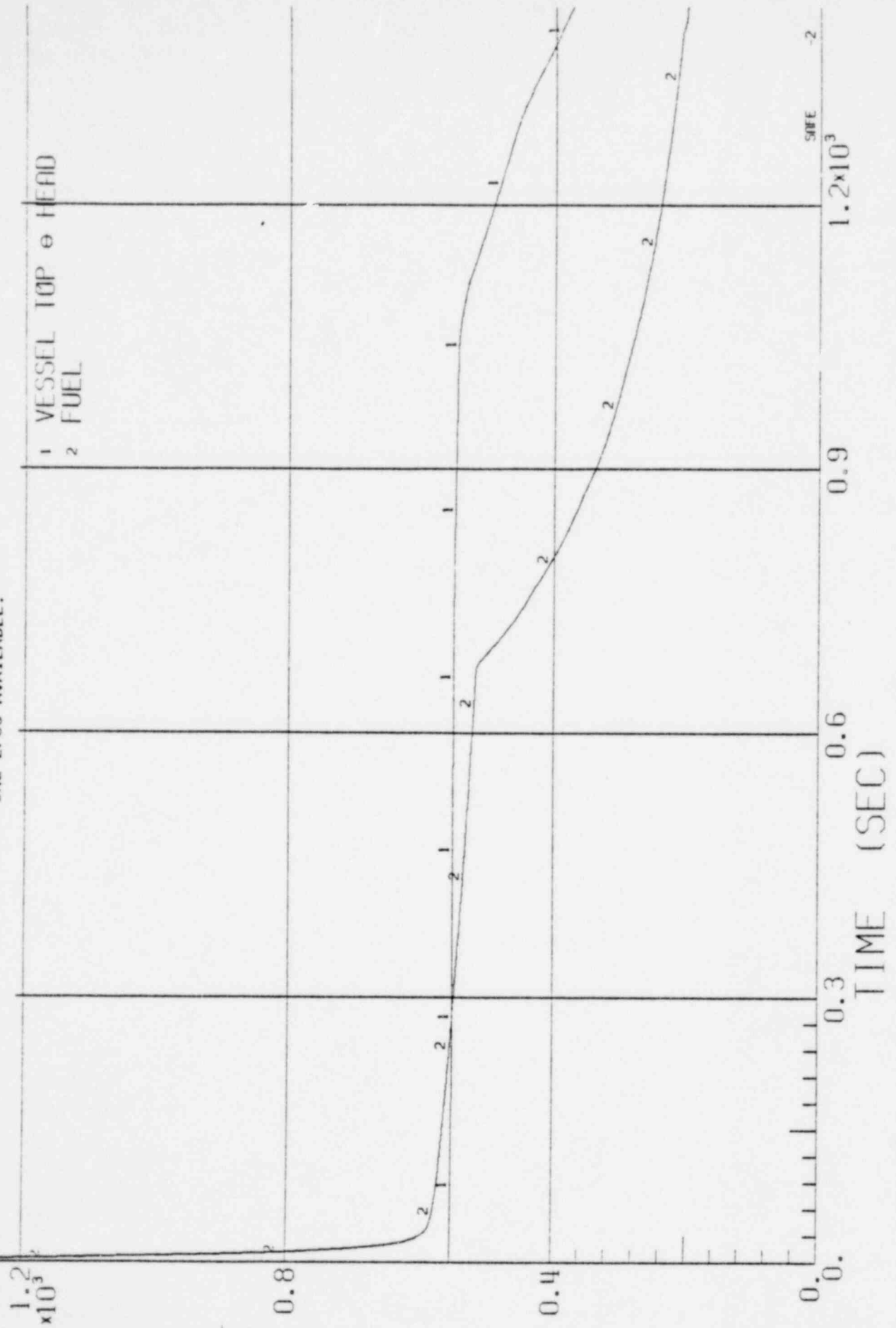
0.

TIME (SEC)

-2

BWR/6-218

FIGURE 3.5.2.1 - 20.6 TEMPERATURE VS TIME FOR A 0.1 FT² STEAMLINE BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.

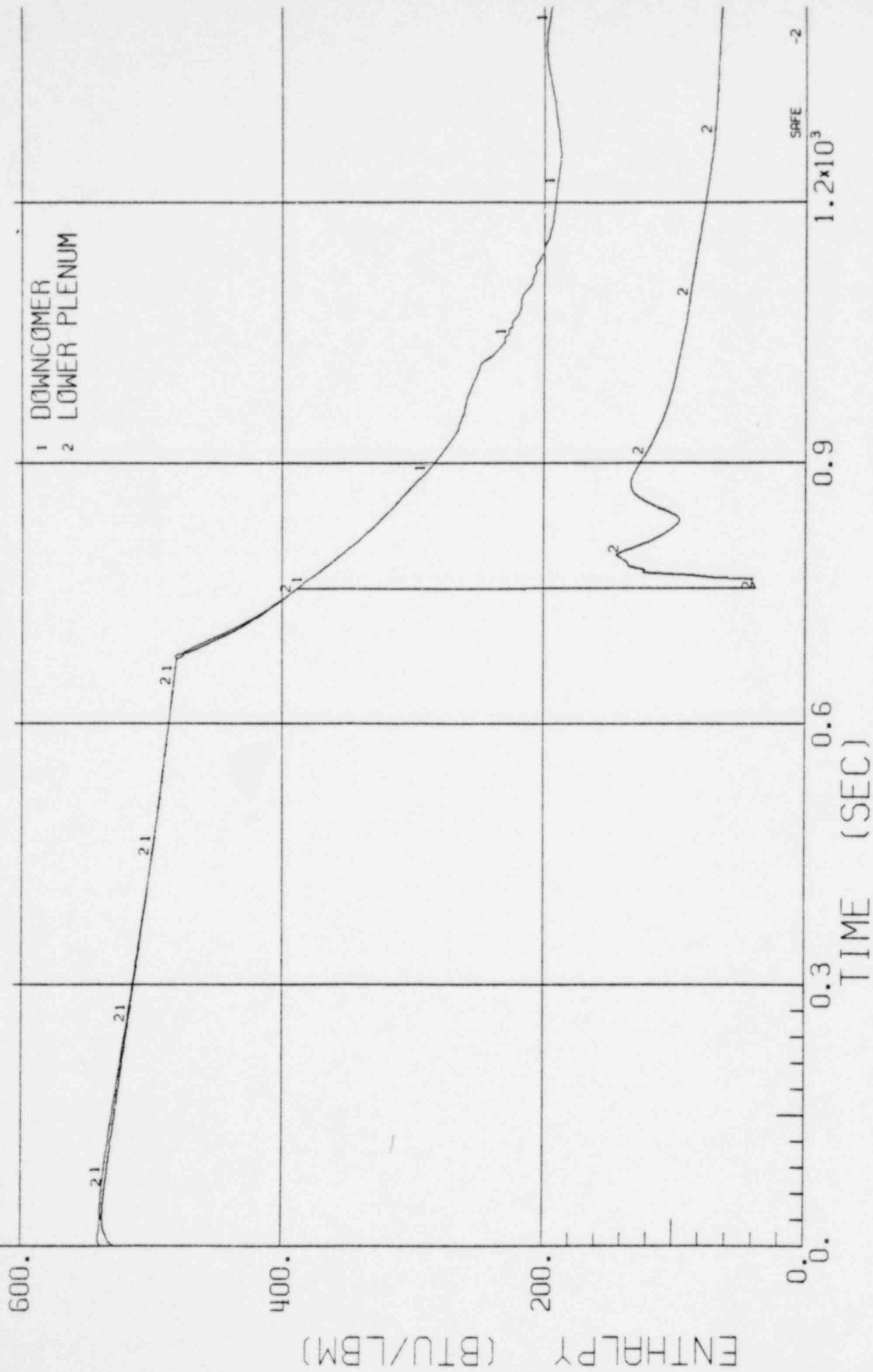


TEMPERATURE (DEG F)

1549 162

BWR/6-218

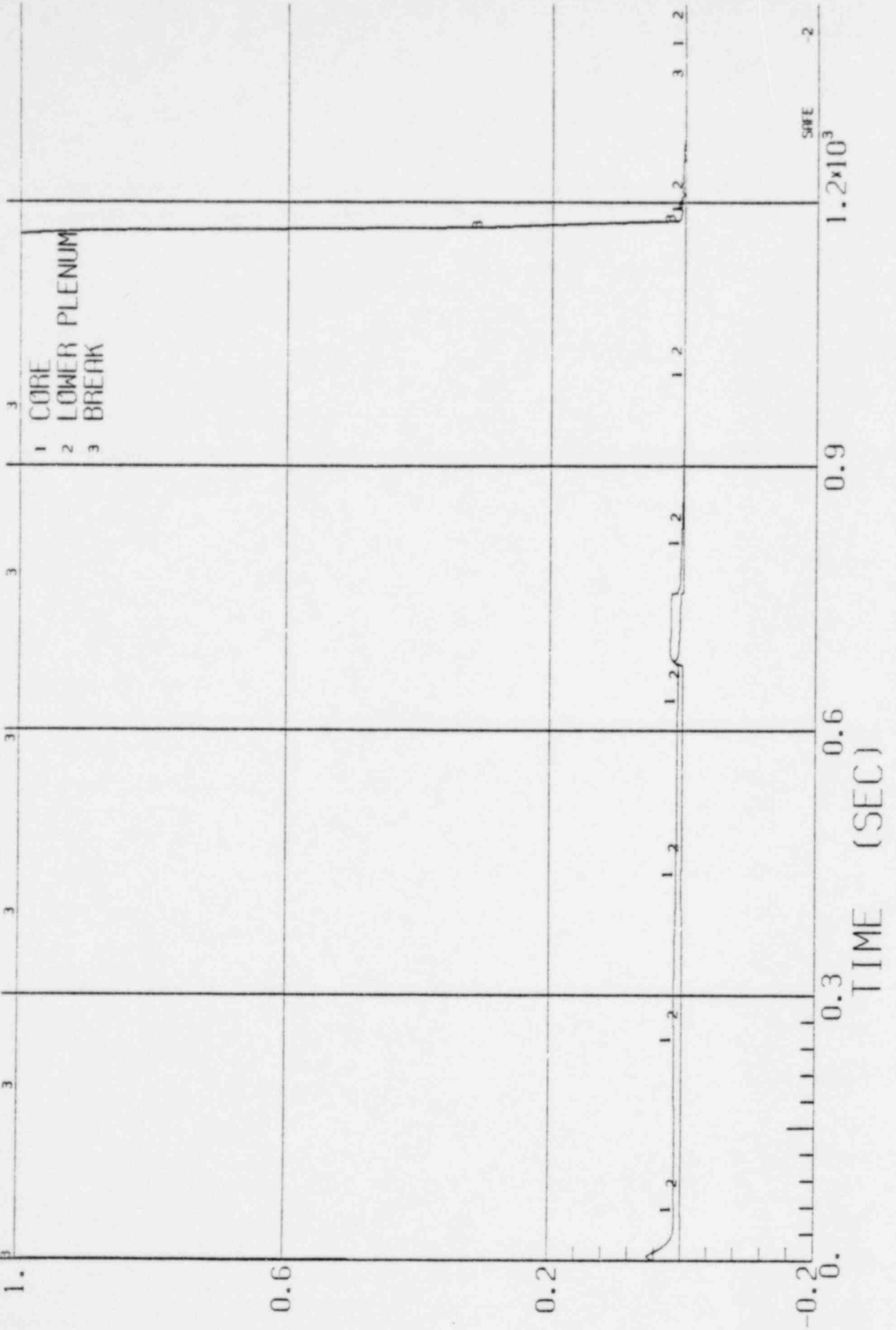
FIGURE 3.5.2.1 - 20.7 ENTHALPY VS TIME FOR A 0.1 FT² STEAMLINE BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



SAFE -2

BWR/6-218

FIGURE 3.5.2.1 - 20.8 QUALITY VS TIME FOR A 0.1 FT² STEAMLINE BREAK WITH ONE LPCI AND ONE LPCS AVAILABLE.



QUALITY

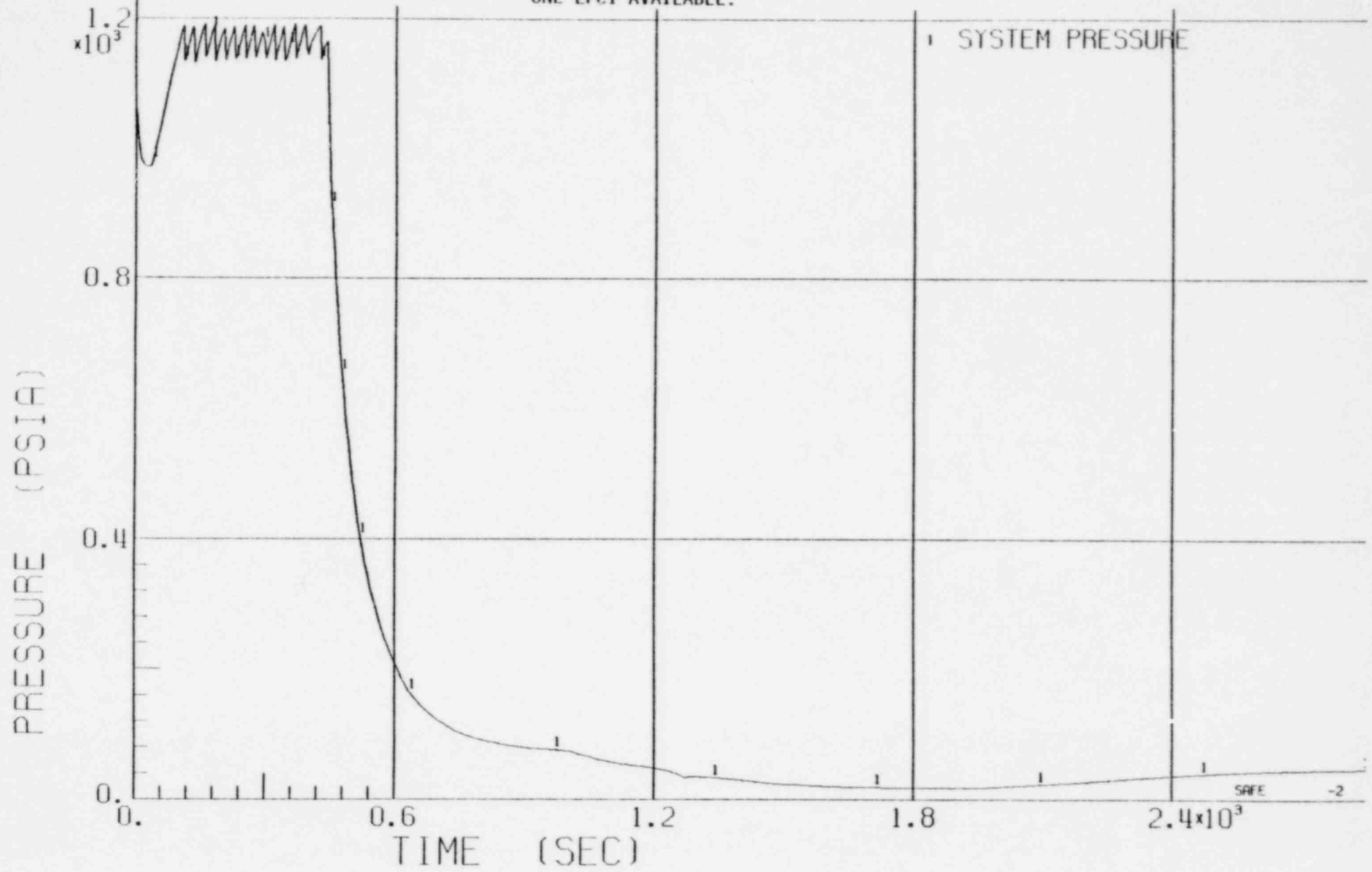
1549 164

SAFE

-2

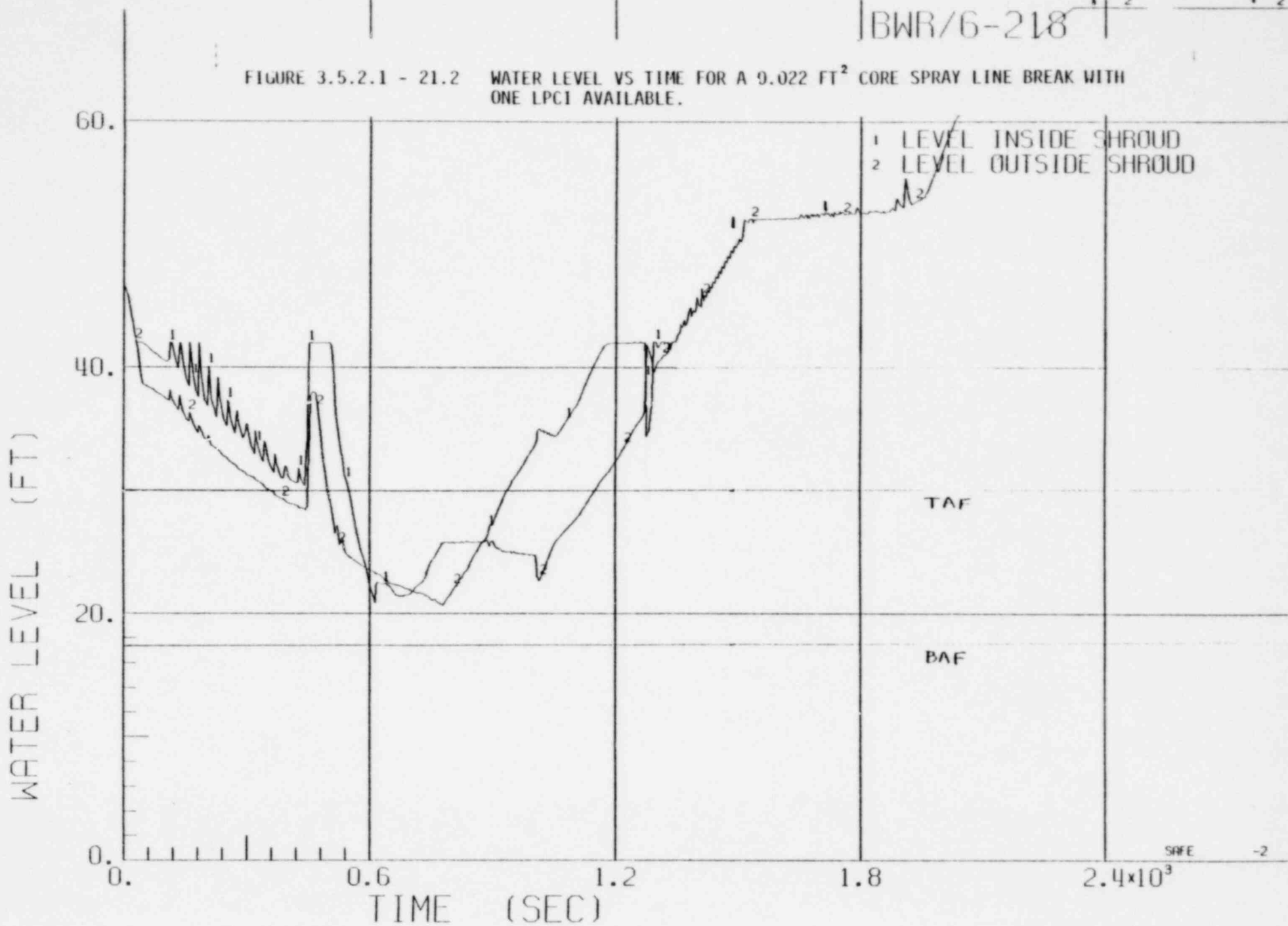
BWR/6-218

FIGURE 3.5.2.1 - 21.1 SYSTEM PRESSURE VS TIME FOR A 0.022 FT² CORE SPRAY LINE BREAK WITH ONE LPCI AVAILABLE.



1549 165

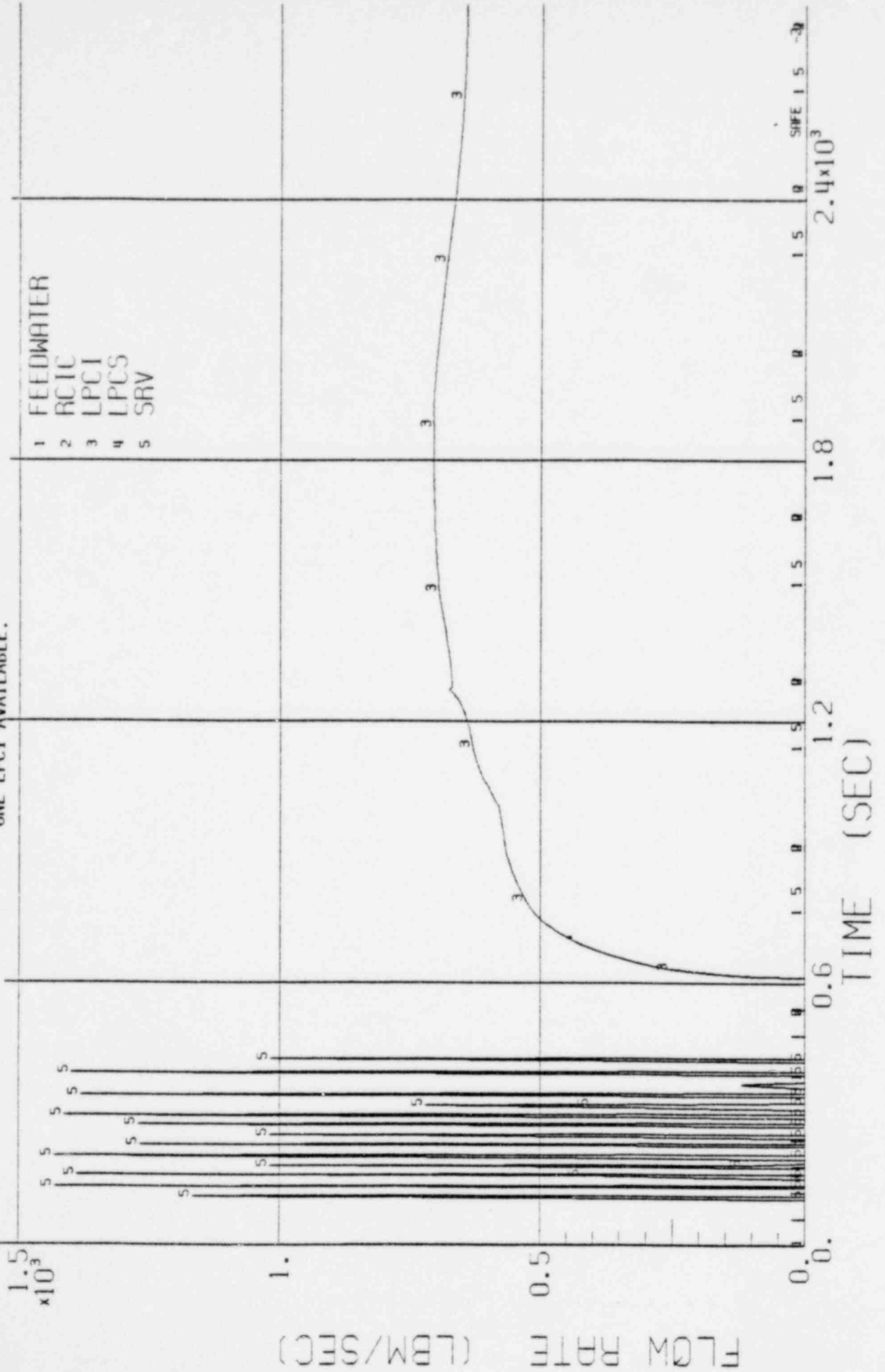
FIGURE 3.5.2.1 - 21.2 WATER LEVEL VS TIME FOR A 9.022 FT² CORE SPRAY LINE BREAK WITH ONE LPCI AVAILABLE.



1549 166

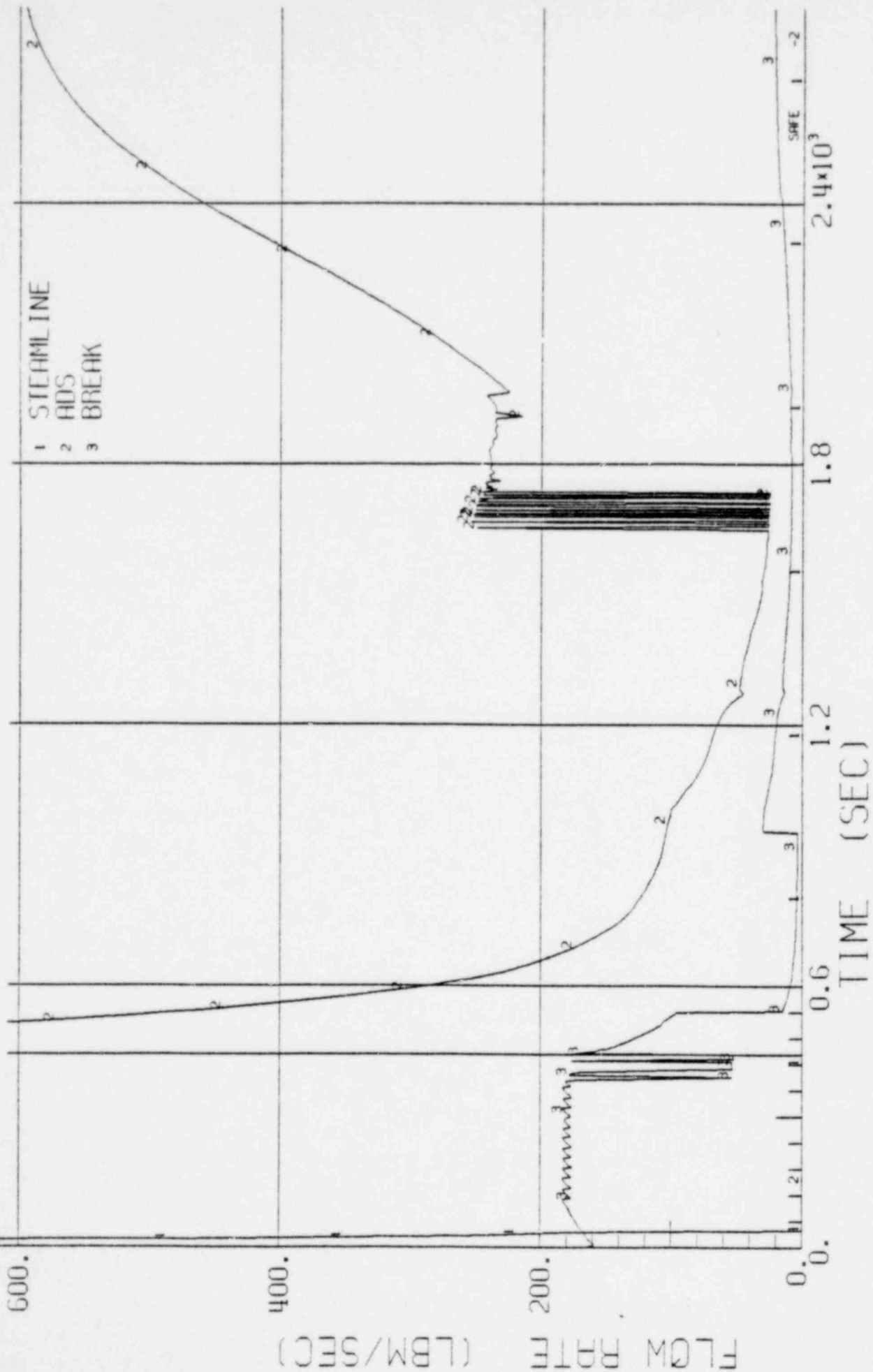
BWR/6-218

FIGURE 3.5.2.1 - 21.3 SYSTEM FLOW RATES VS TIME FOR A 0.022 FT² CORE SPRAY LINE BREAK WITH ONE LPCI AVAILABLE.



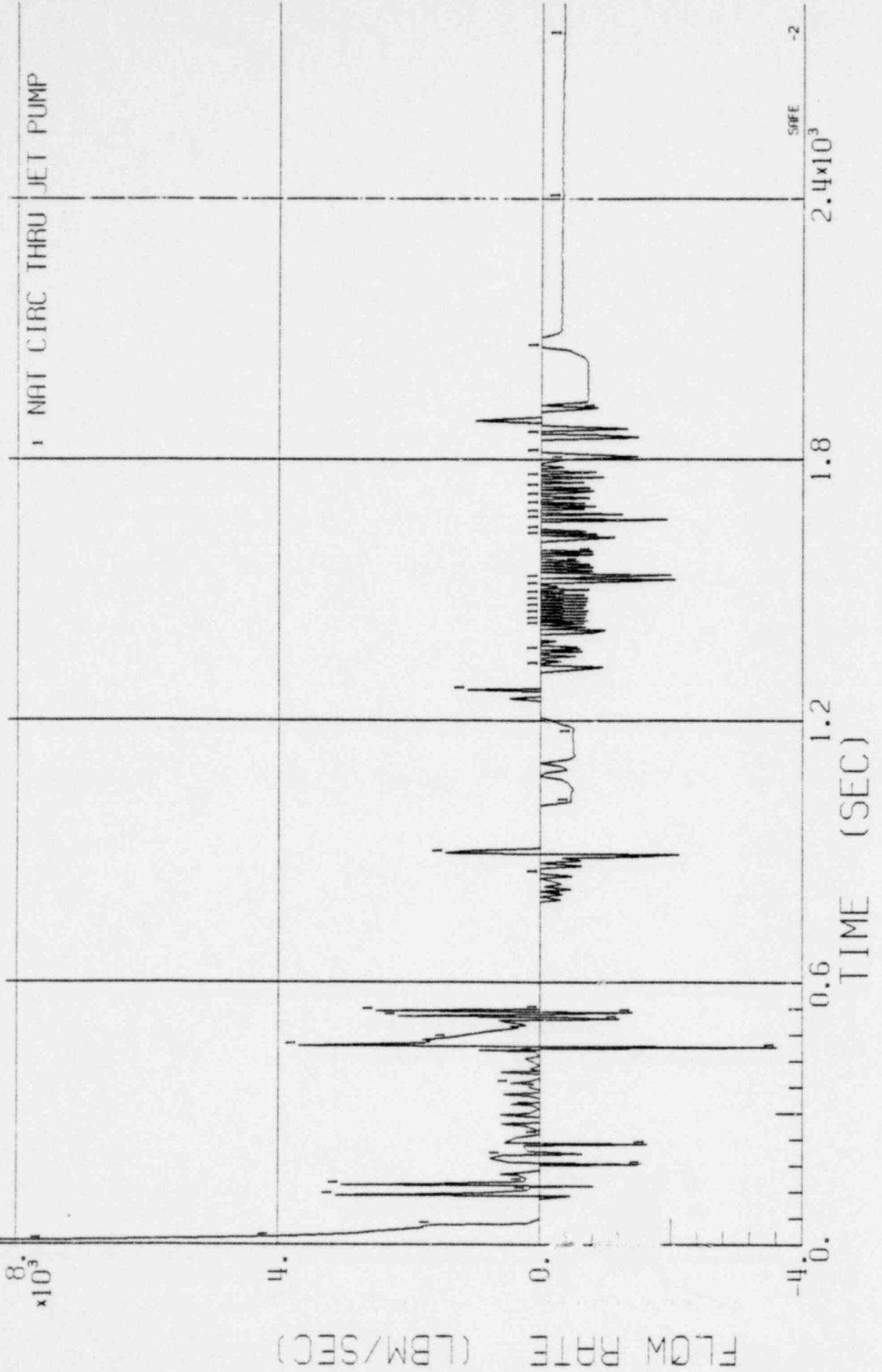
BWR/6-218

FIGURE 3.5.2.1 - 21.4 FLOW RATES VS TIME FOR A 0.022 FT² CORE SPRAY LINE BREAK WITH ONE LPCI AVAILABLE.



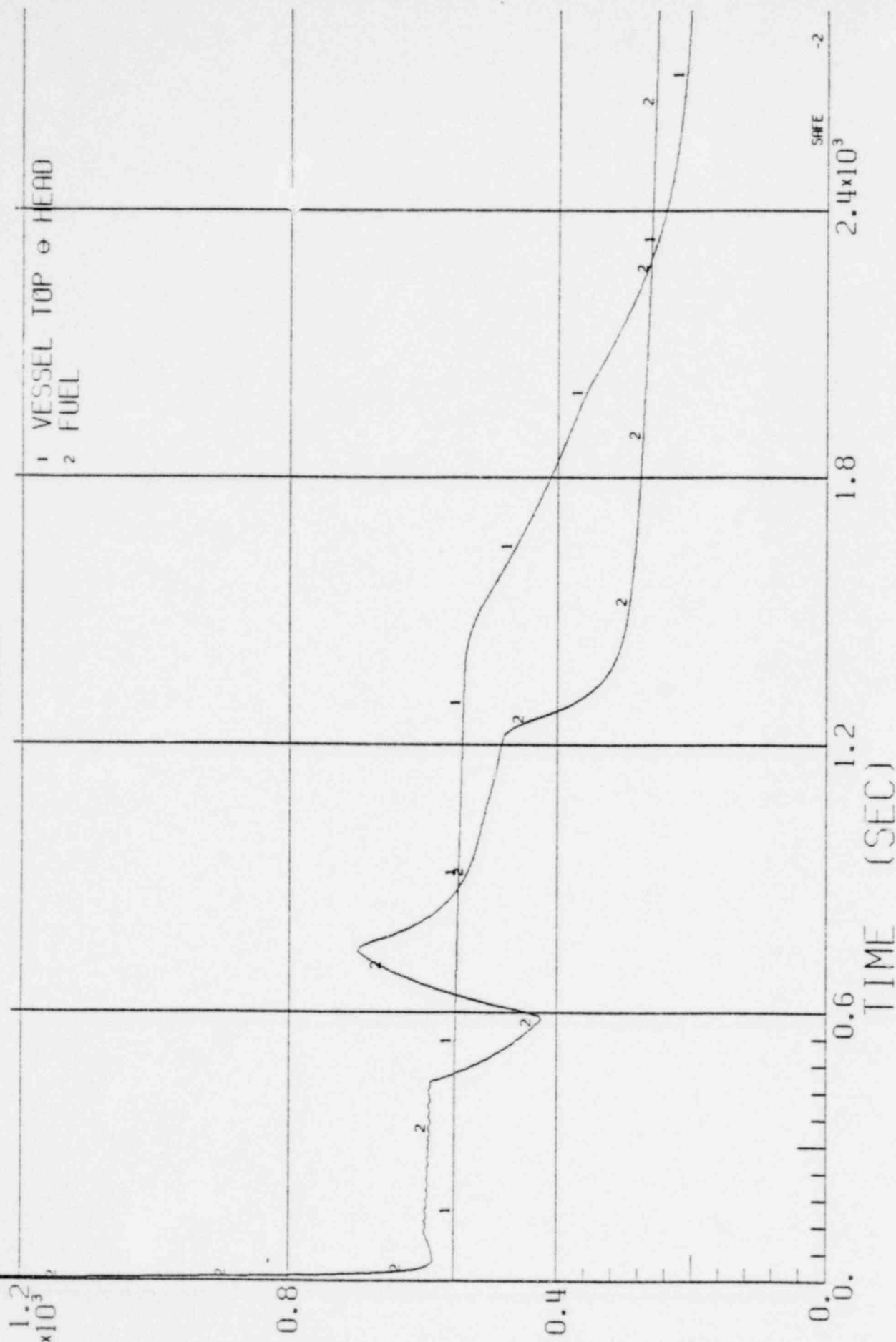
BWR/6-218

FIGURE 3.5.2.1 - 21.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.022 FT² CORE SPRAY LINE BREAK WITH ONE LPCI AVAILABLE.



BWR/6-218

FIGURE 3.5.2.1 - 21.6 TEMPERATURE VS TIME FOR A 0.022 FT² CORE SPRAY LINE BREAK WITH ONE LPCI AVAILABLE.



TEMPERATURE (DEG F)

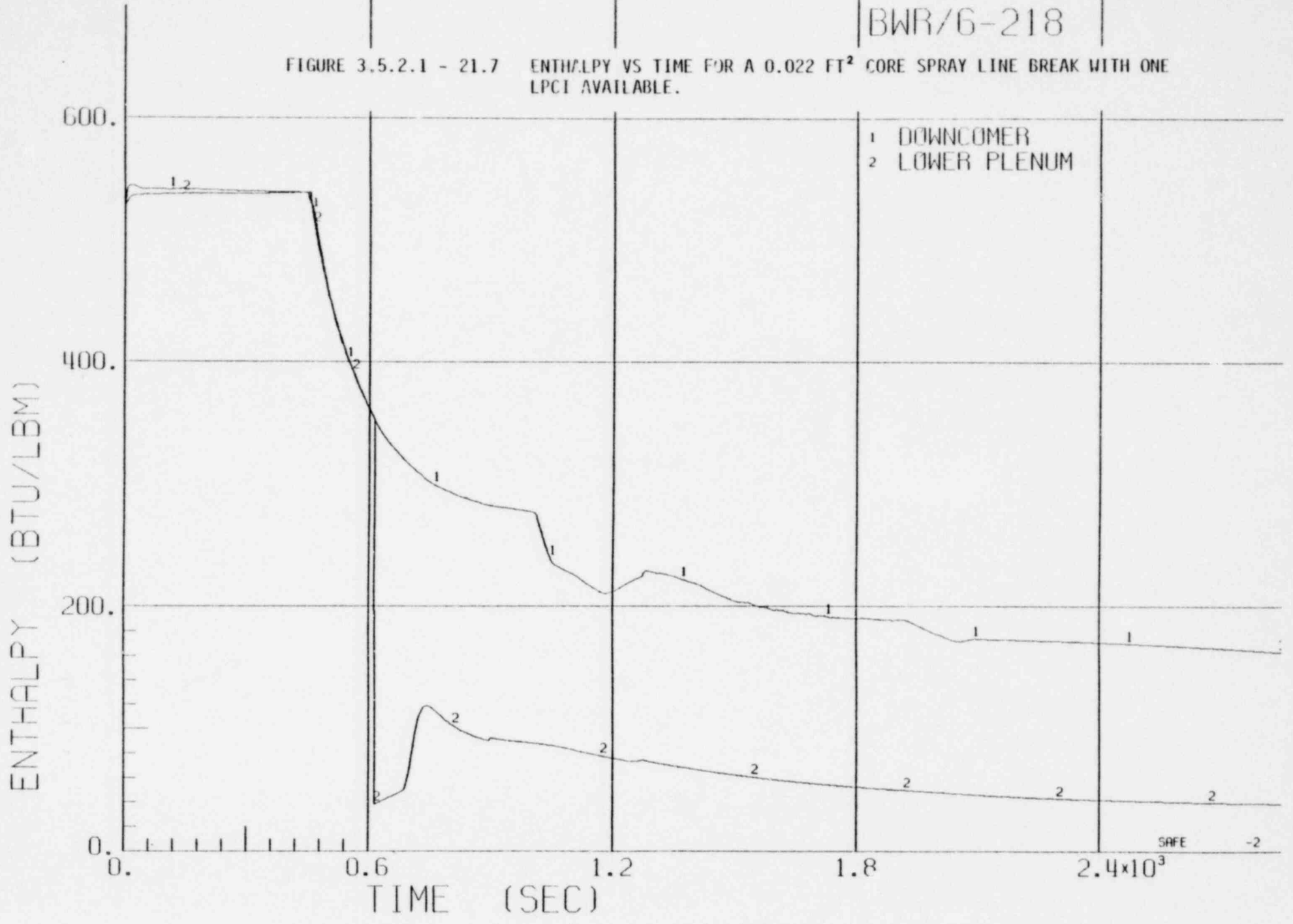
TIME (SEC)

1549 170

SAFE -2

BWR/6-218

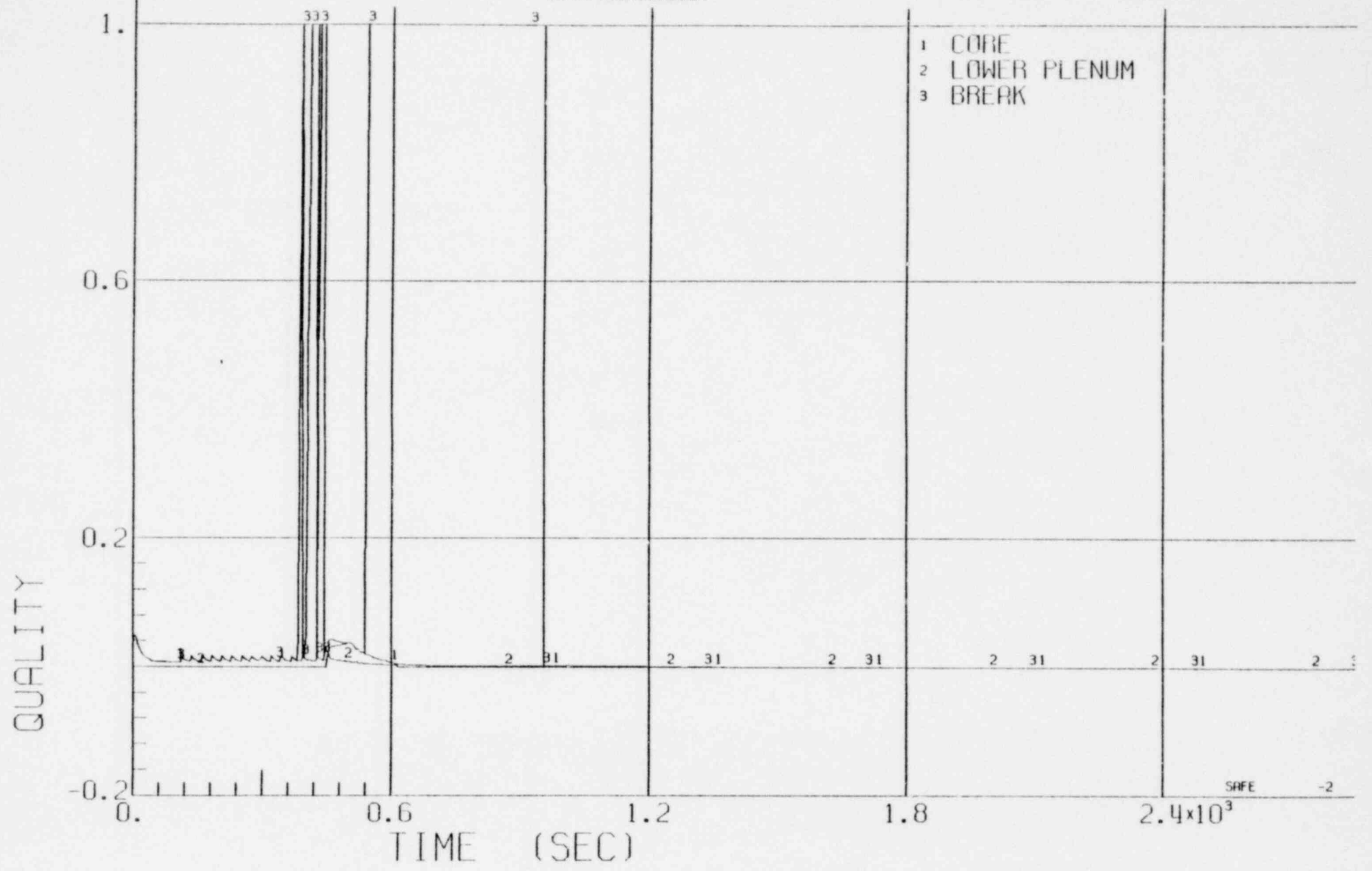
FIGURE 3.5.2.1 - 21.7 ENTHALPY VS TIME FOR A 0.022 FT² CORE SPRAY LINE BREAK WITH ONE LPCI AVAILABLE.



1549 171

BWR/6-218

FIGURE 3.5.2.1 - 21.8 QUALITY VS TIME FOR A 0.022 FT² CORE SPRAY LINE BREAK WITH ONE LPCS AVAILABLE.



1549 177

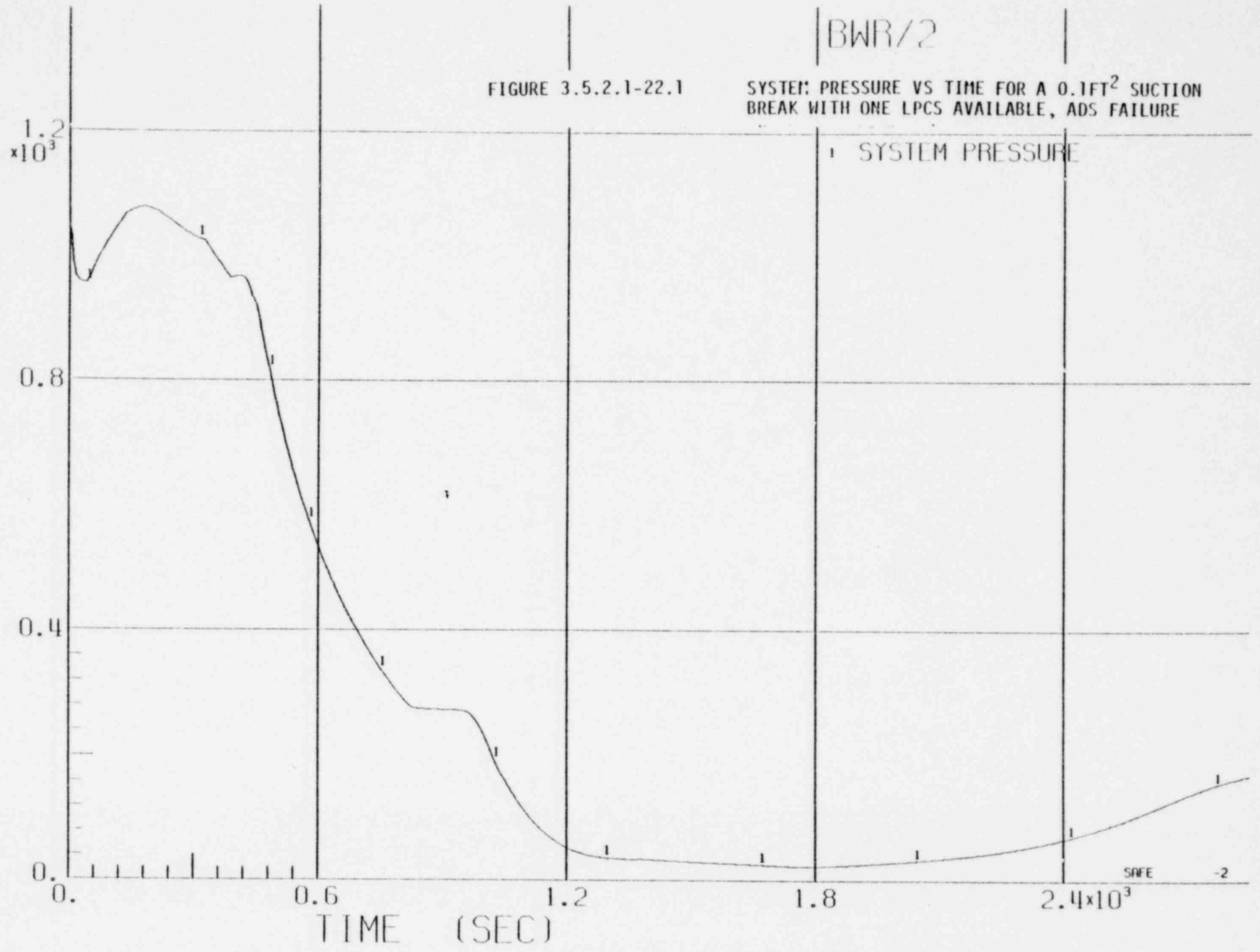
BWR/2

FIGURE 3.5.2.1-22.1

SYSTEM: PRESSURE VS TIME FOR A 0.1FT² SUCTION
BREAK WITH ONE LPCS AVAILABLE, ADS FAILURE

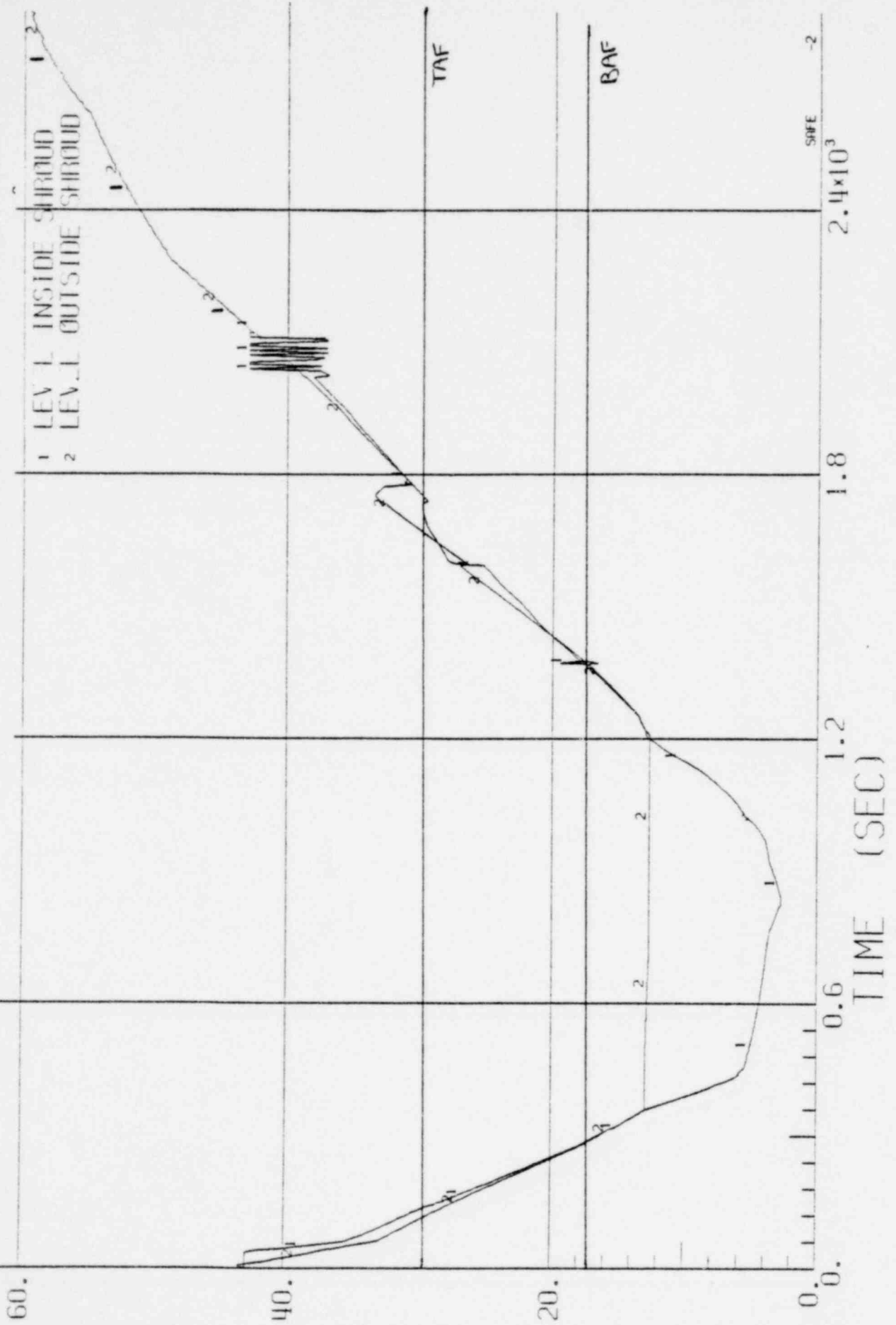
SYSTEM PRESSURE

1549 173
PRESSURE (PSIA)



BWR/2

FIGURE 3.5.2.1-22.2 WATER LEVEL VS TIME FOR A 0.1FT² SUCTION BREAK WITH ONE LPCS AVAILABLE, ADS FAILURE



WATER LEVEL (FT)

1549 174

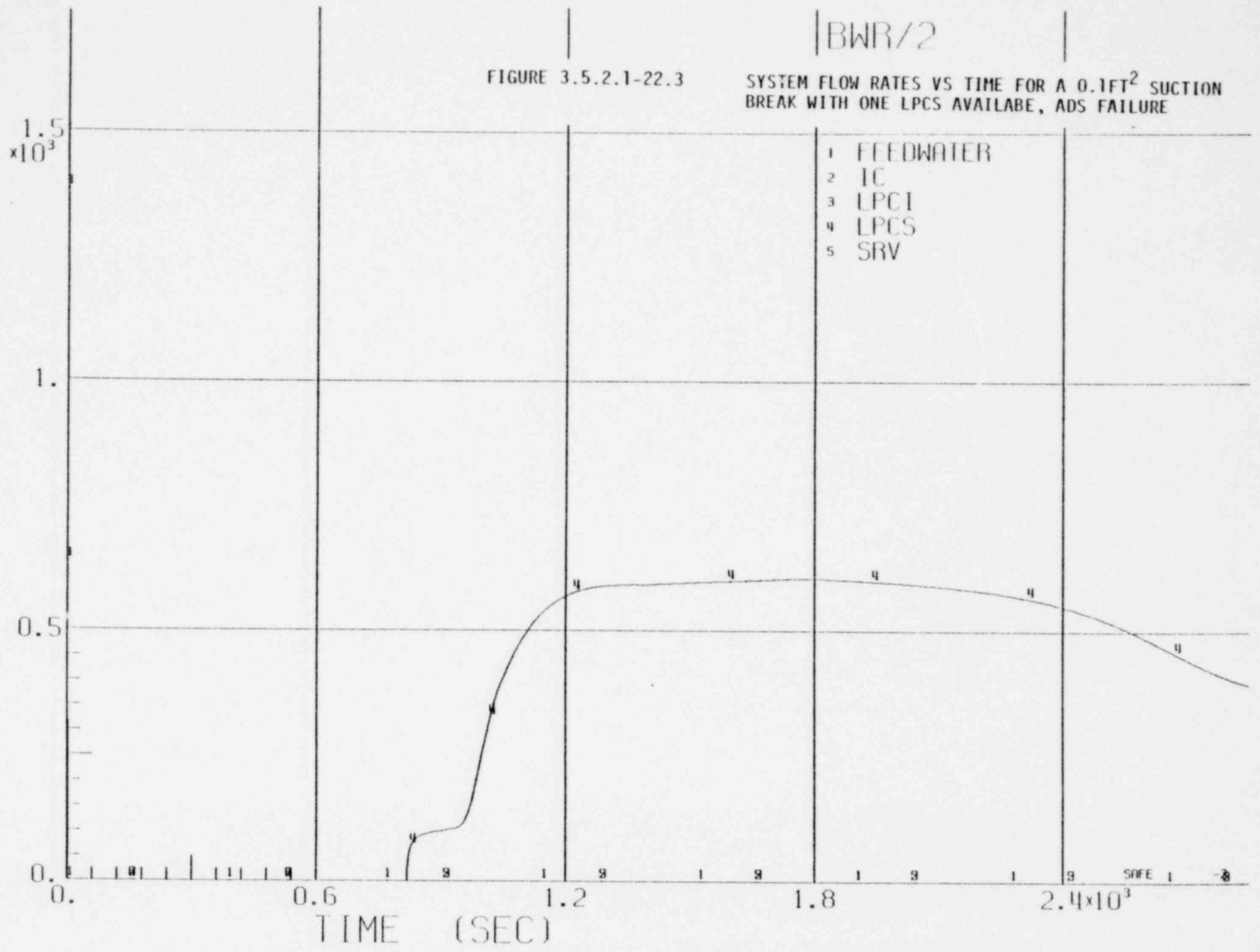
BWR/2

FIGURE 3.5.2.1-22.3

SYSTEM FLOW RATES VS TIME FOR A 0.1FT² SUCTION
BREAK WITH ONE LPCS AVAILABE, ADS FAILURE

- 1 FEEDWATER
- 2 IC
- 3 LPCI
- 4 LPCS
- 5 SRV

FLOW RATE (GPM/SEC)
M071

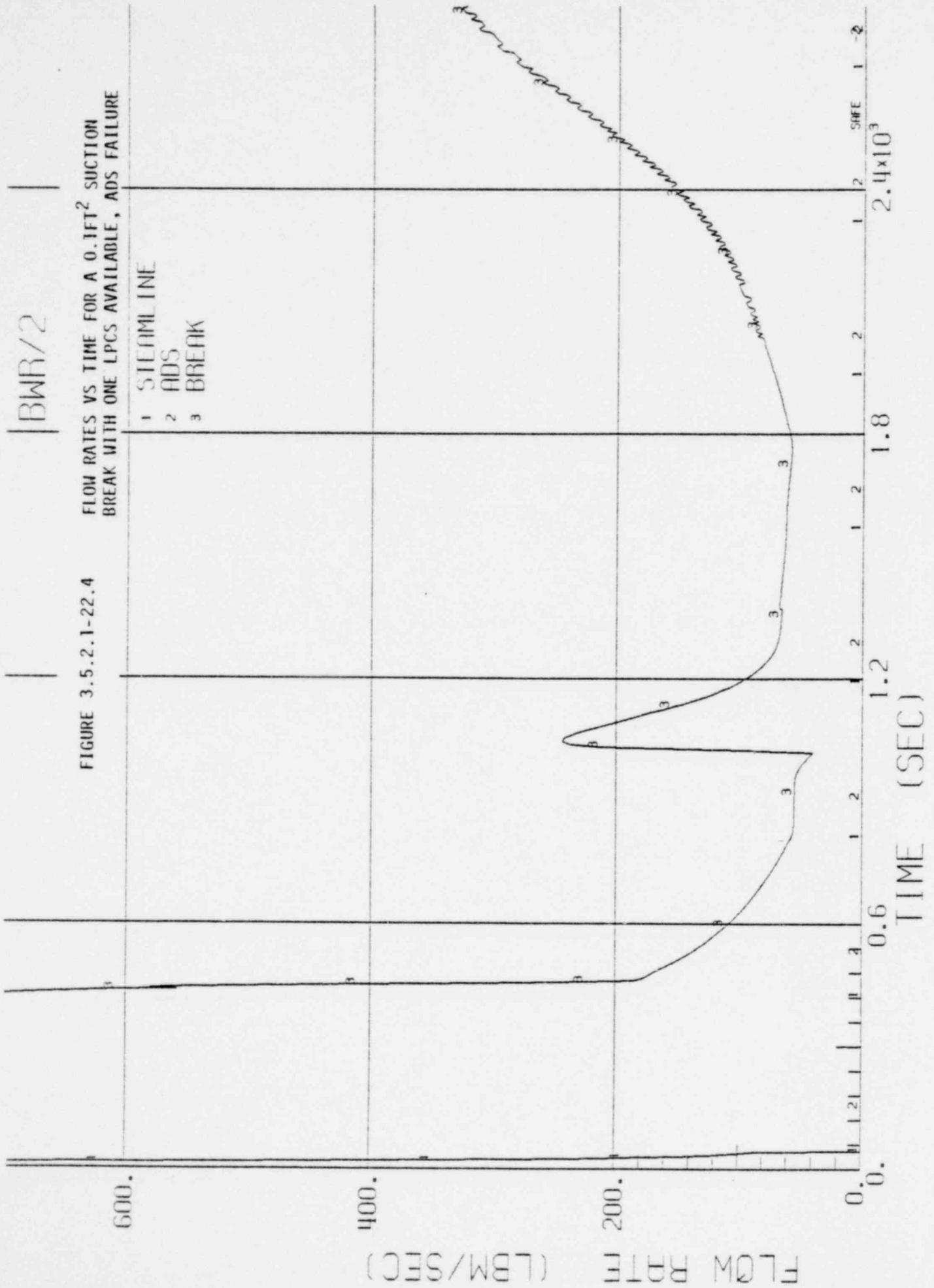


1549 175

BWR/2

FIGURE 3.5.2.1-22.4 FLOW RATES VS TIME FOR A 0.1FT² SUCTION
BREAK WITH ONE LPCS AVAILABLE, ADS FAILURE

- 1 STEADYLINE
- 2 ADS
- 3 BREAK



1549 176

BWR/2

FIGURE 3.5.2.1-22.5
NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.1FT²
SUCTION BREAK WITH ONE LPCS AVAILABLE, ADS FAILURE

1 NATURAL CIRCULATION

8×10^3

FLOW RATE (LBM/SEC)

-4
0

0.6

1.2

1.8

2.4×10^3

SAFE

-2

TIME (SEC)

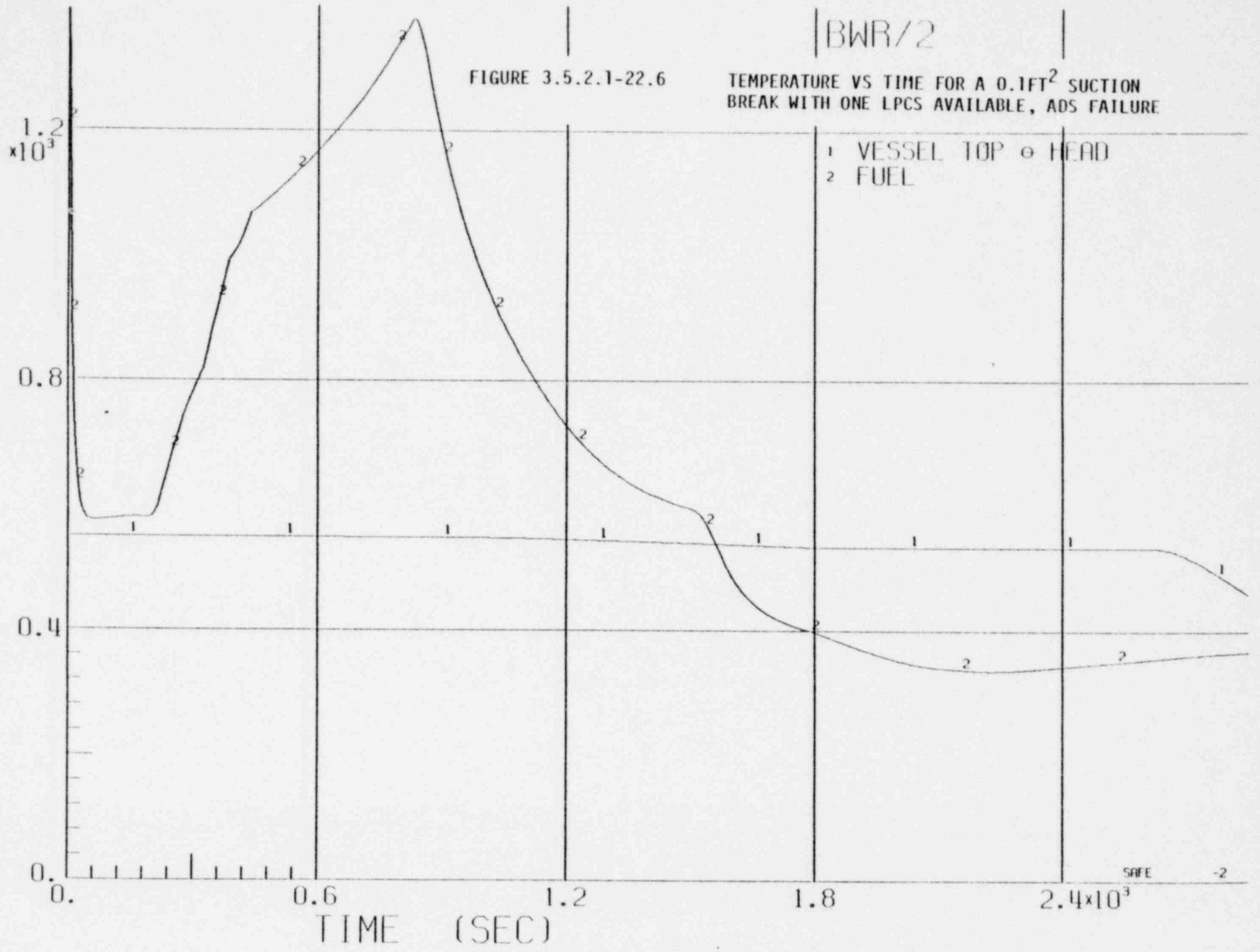
BWR/2

FIGURE 3.5.2.1-22.6

TEMPERATURE VS TIME FOR A 0.1FT² SUCTION
BREAK WITH ONE LPCS AVAILABLE, ADS FAILURE

- 1 VESSEL TOP & HEAD
- 2 FUEL

TEMPERATURE (DEG F)



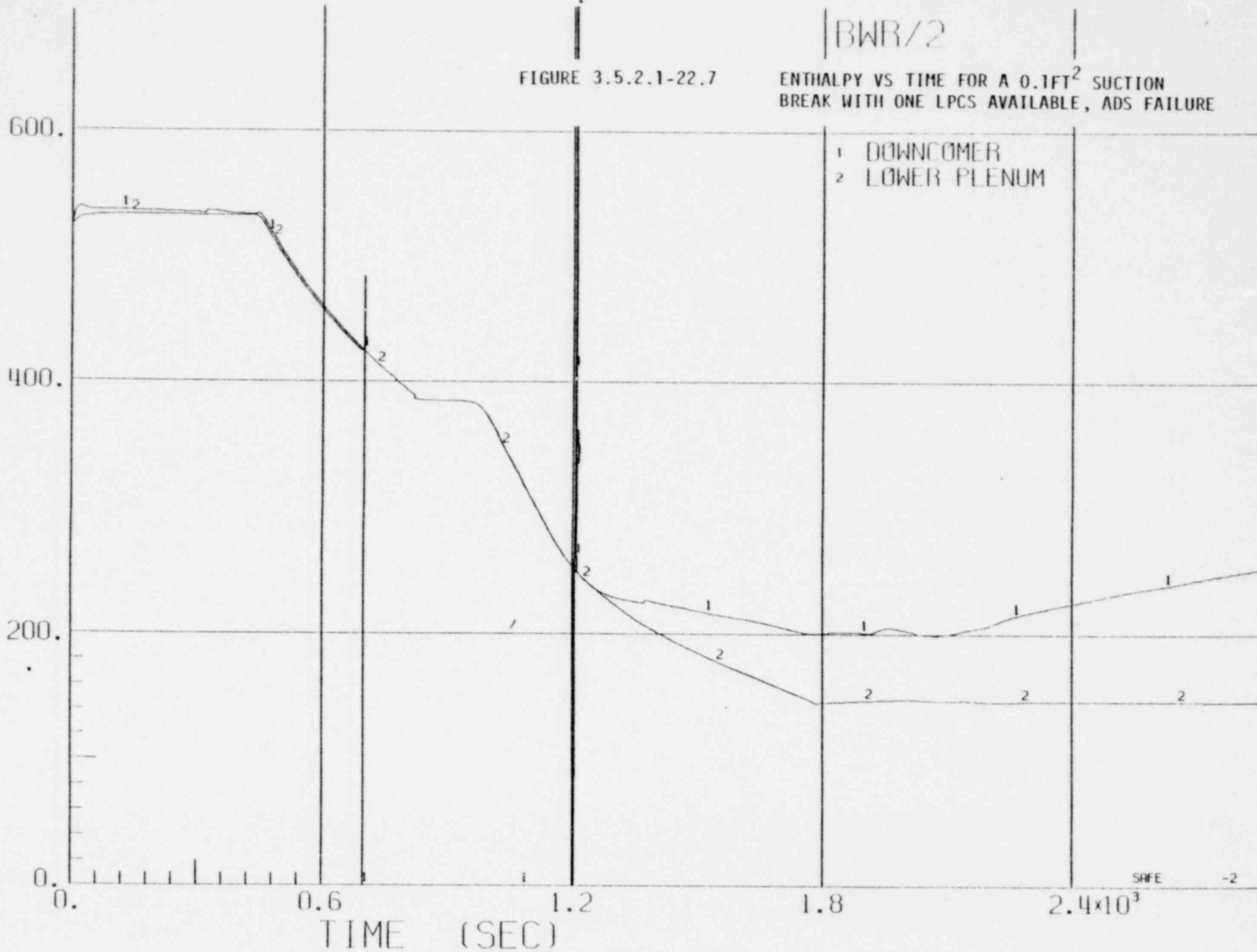
1549 178

FIGURE 3.5.2.1-22.7

BWR/2
ENTHALPY VS TIME FOR A 0.1FT² SUCTION
BREAK WITH ONE LPCS AVAILABLE, ADS FAILURE

ENTHALPY (BTU/LBM)

1 DOWNCOMER
2 LOWER PLENUM



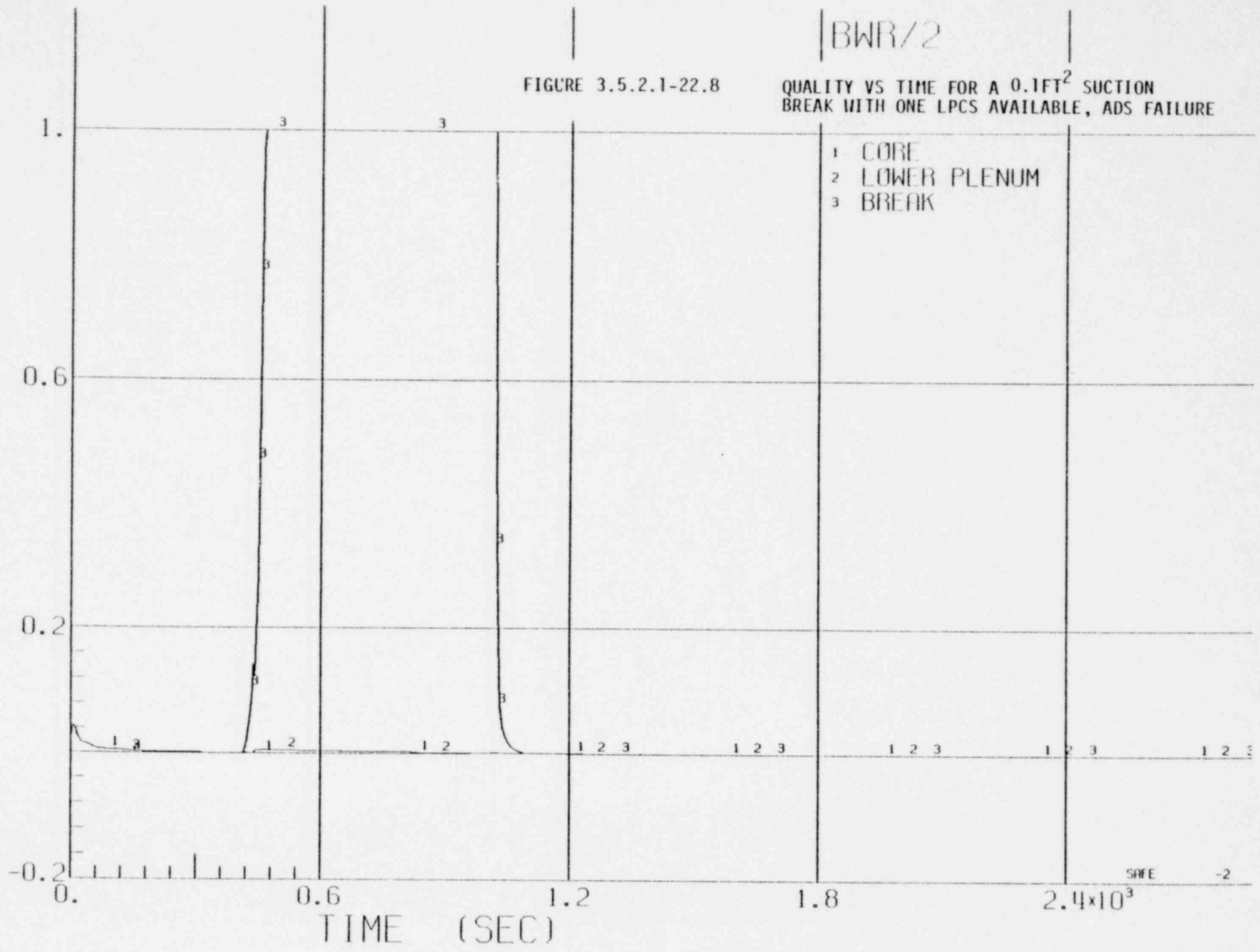
1549 179

BWR/2

FIGURE 3.5.2.1-22.8

QUALITY VS TIME FOR A 0.1FT² SUCTION
BREAK WITH ONE LPCS AVAILABLE, ADS FAILURE

- 1 CORE
- 2 LOWER PLENUM
- 3 BREAK



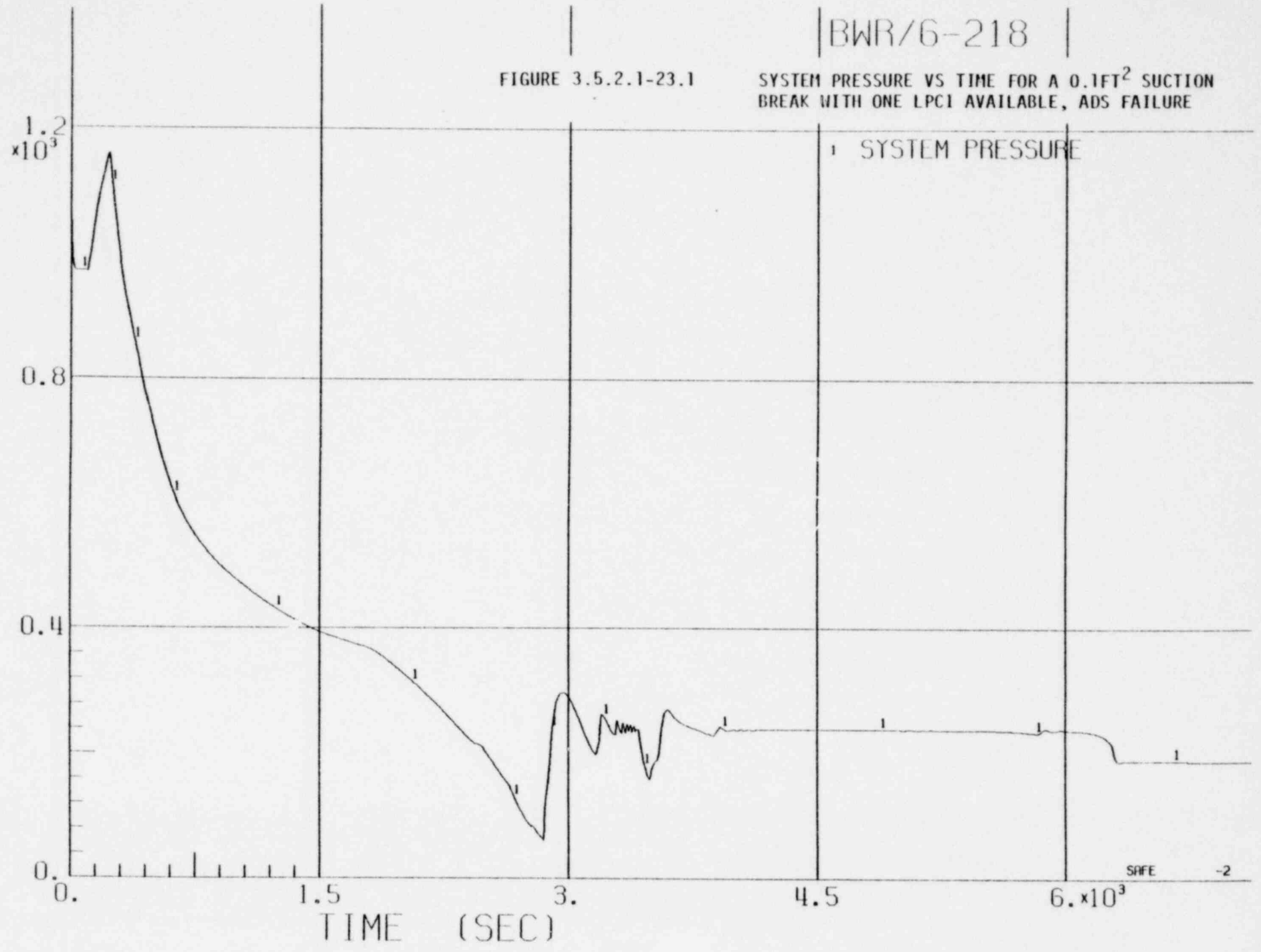
ALITAND
1549 180

BWR/6-218

FIGURE 3.5.2.1-23.1

SYSTEM PRESSURE VS TIME FOR A 0.1FT² SUCTION
BREAK WITH ONE LPCI AVAILABLE, ADS FAILURE

1549 181
PRESSURE (PSIA)



BWR/6-218

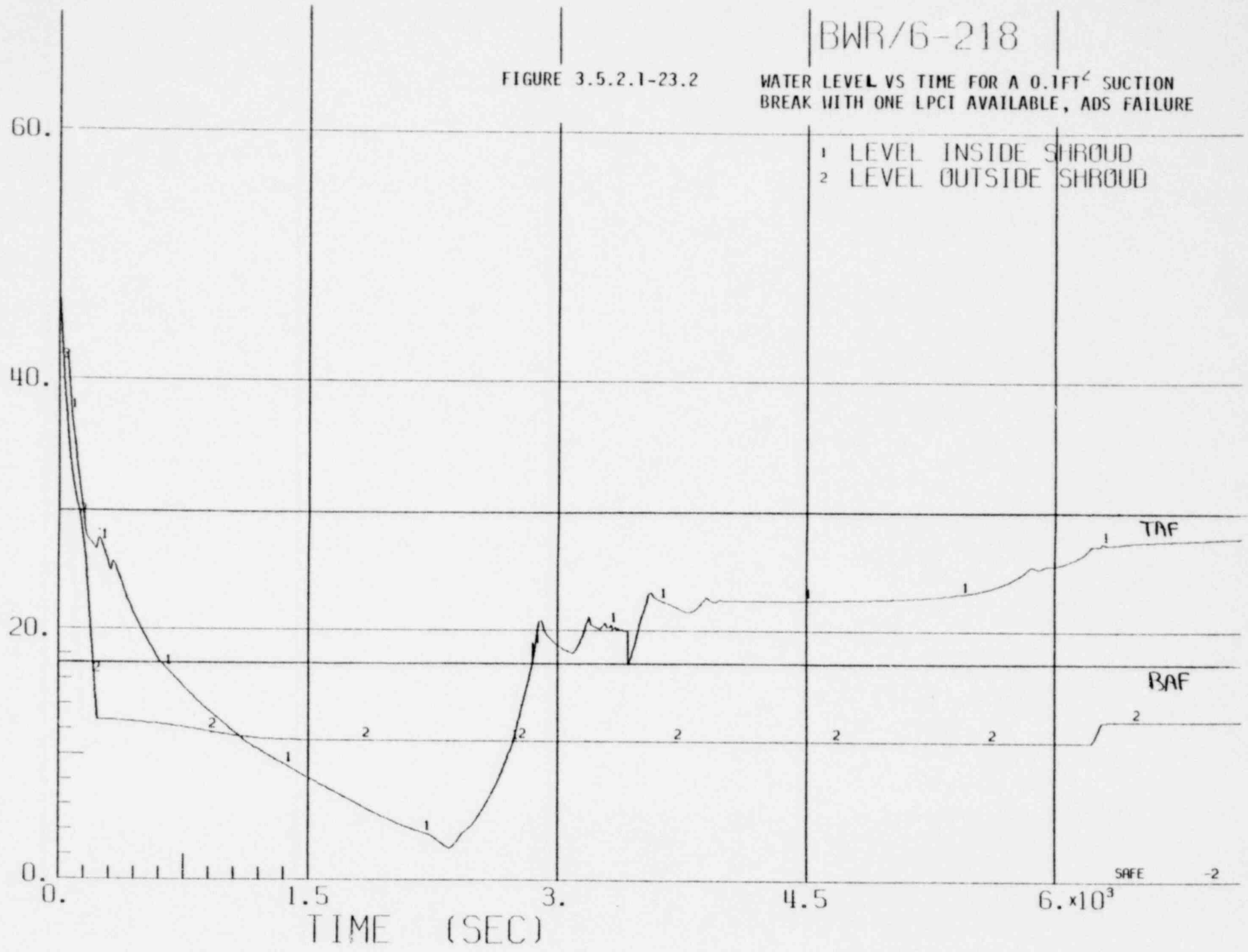
FIGURE 3.5.2.1-23.2

WATER LEVEL VS TIME FOR A 0.1FT⁴ SUCTION
BREAK WITH ONE LPCI AVAILABLE, ADS FAILURE

- 1 LEVEL INSIDE SHROUD
- 2 LEVEL OUTSIDE SHROUD

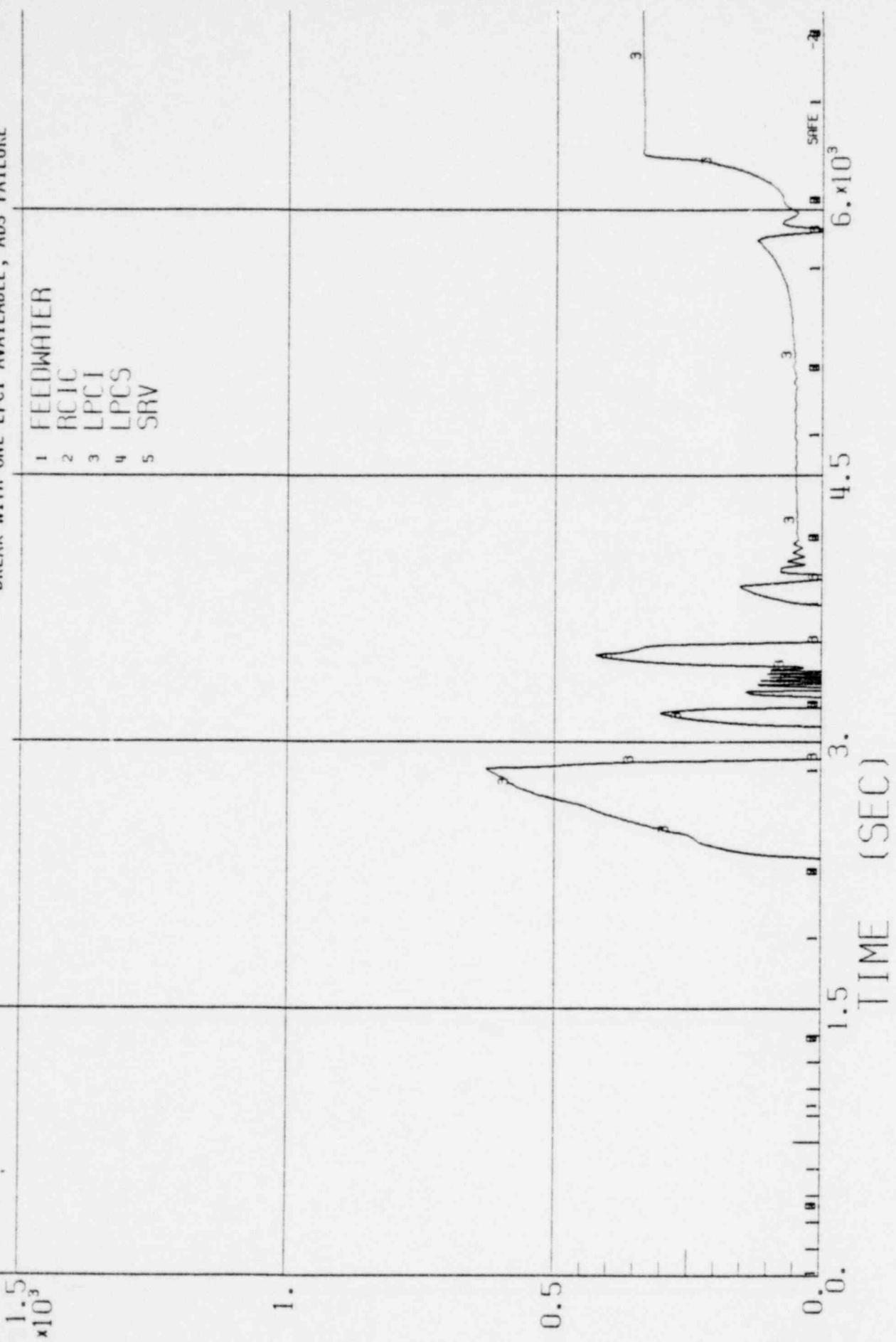
WATER LEVEL (FT)

1549 182



BWR/6-218

FIGURE 3.5.2.1-23.3
SYSTEM FLOW RATES VS TIME FOR A 0.1FT² SUCTION
BREAK WITH ONE LPCI AVAILABLE, ADS FAILURE



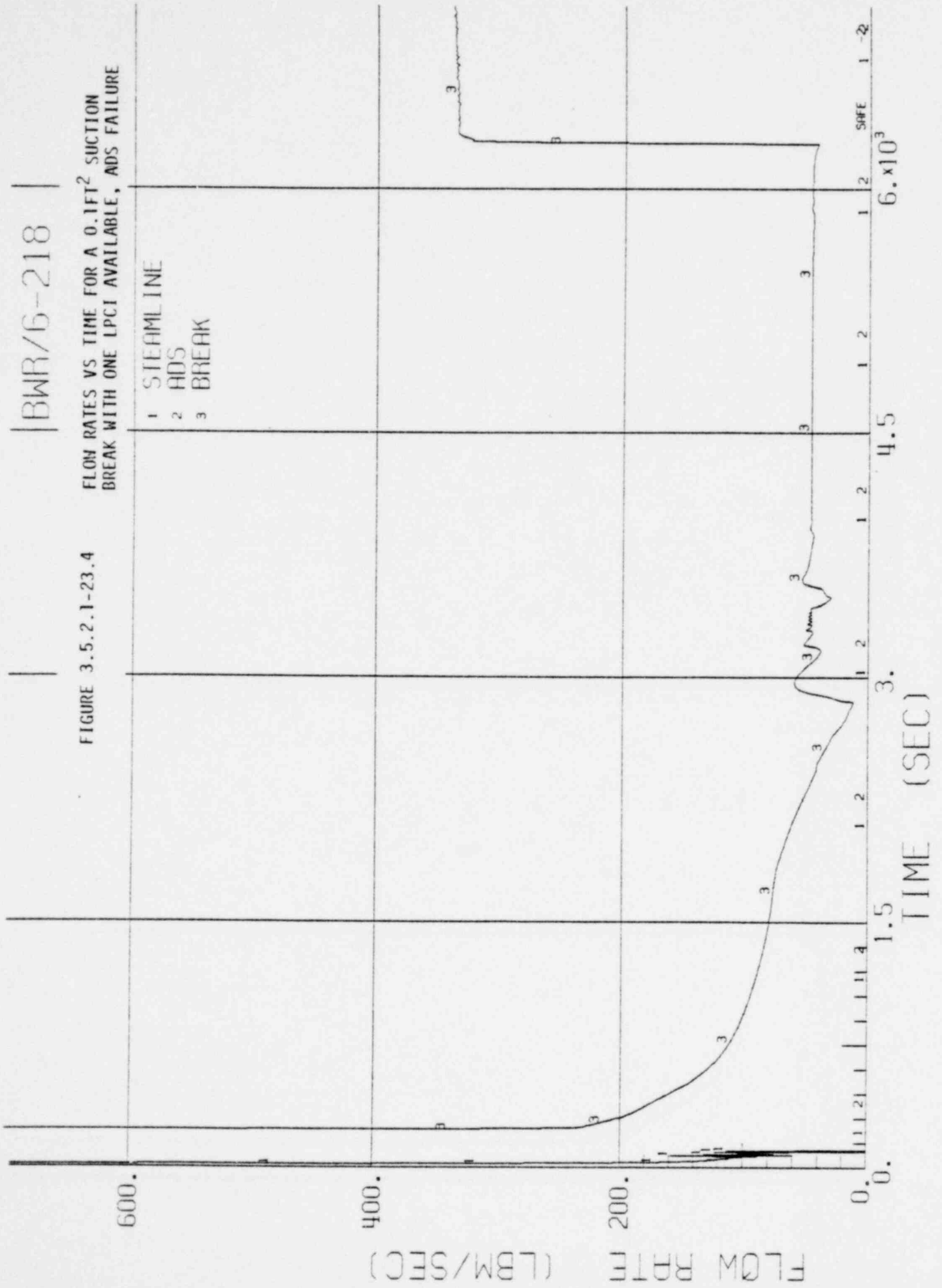
1549 183
FLOW RATE (LBM/SEC)

BWR/6-218

FIGURE 3.5.2.1-23.4

FLOW RATES VS. TIME FOR A 0.1FT² SUCTION
BREAK WITH ONE LPCI AVAILABLE, ADS FAILURE

- 1 STEAMLINER
- 2 ADS
- 3 BREAK



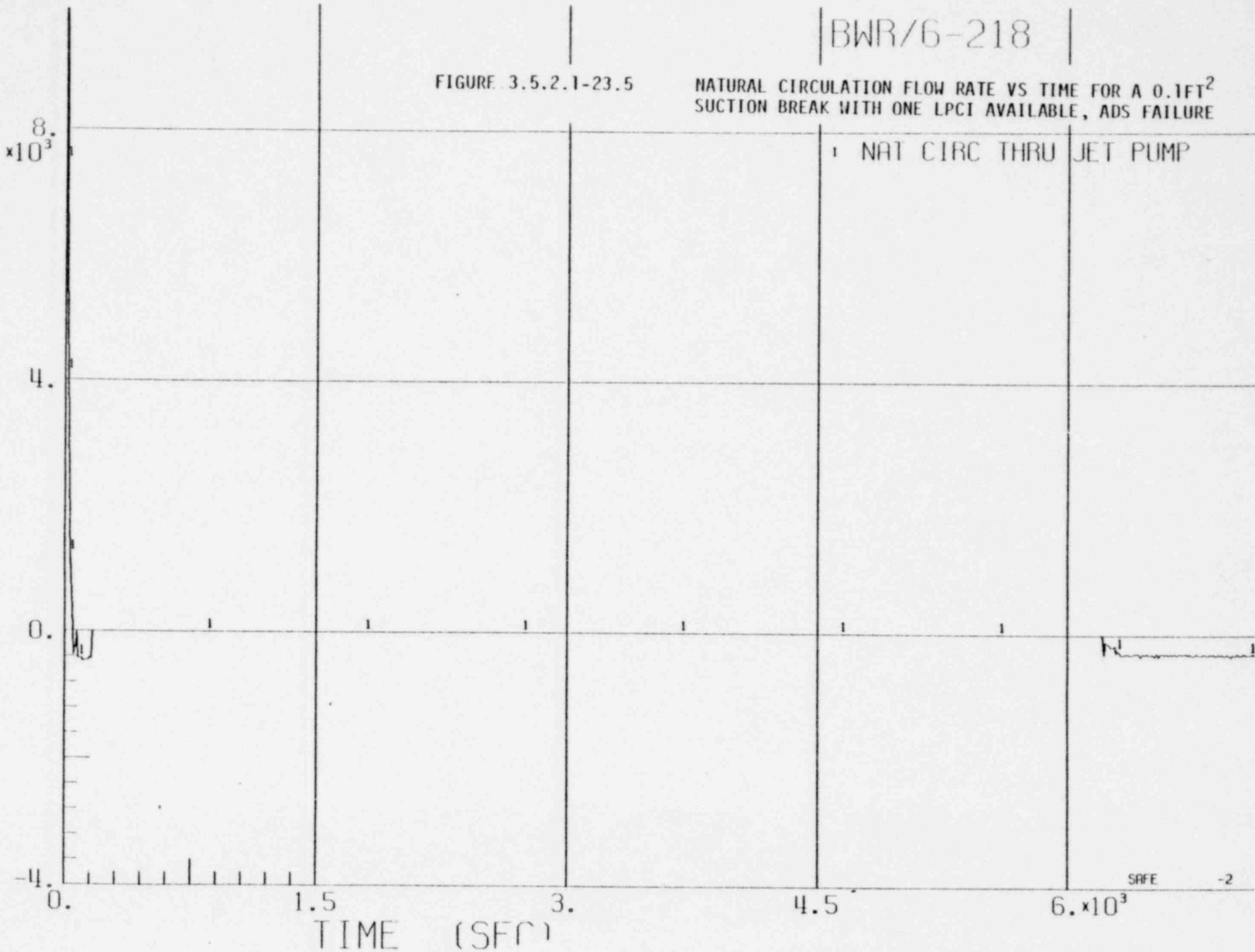
BWR/6-218

FIGURE 3.5.2.1-23.5

NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.1FT²
SUCTION BREAK WITH ONE LPCI AVAILABLE, ADS FAILURE

NAT CIRC THRU JET PUMP

FLOW RATE (LBM/SEC)



SAFE

-2

1549 185

218 BWR/6

FIGURE 3.5.2.1-23.6 A

TEMPERATURE* VS TIME FOR A 0.1FT² SUCTION
BREAK WITH ONE LPCI AVAILABLE, ADS FAILURE

1 AVG BUND NODE 3

*TEMPERATURE CALCULATED USING CHASTE

PEAK CLAD TEMP - DEG F

$\times 10^3$

3.

2.

1.

0.

1.5

3.

4.5

6. $\times 10^3$

TIME - SECONDS

1549-186

PEAK CLAD TEMP - DEG F

1549 187
PEAK CLAD TEMP - DEG F

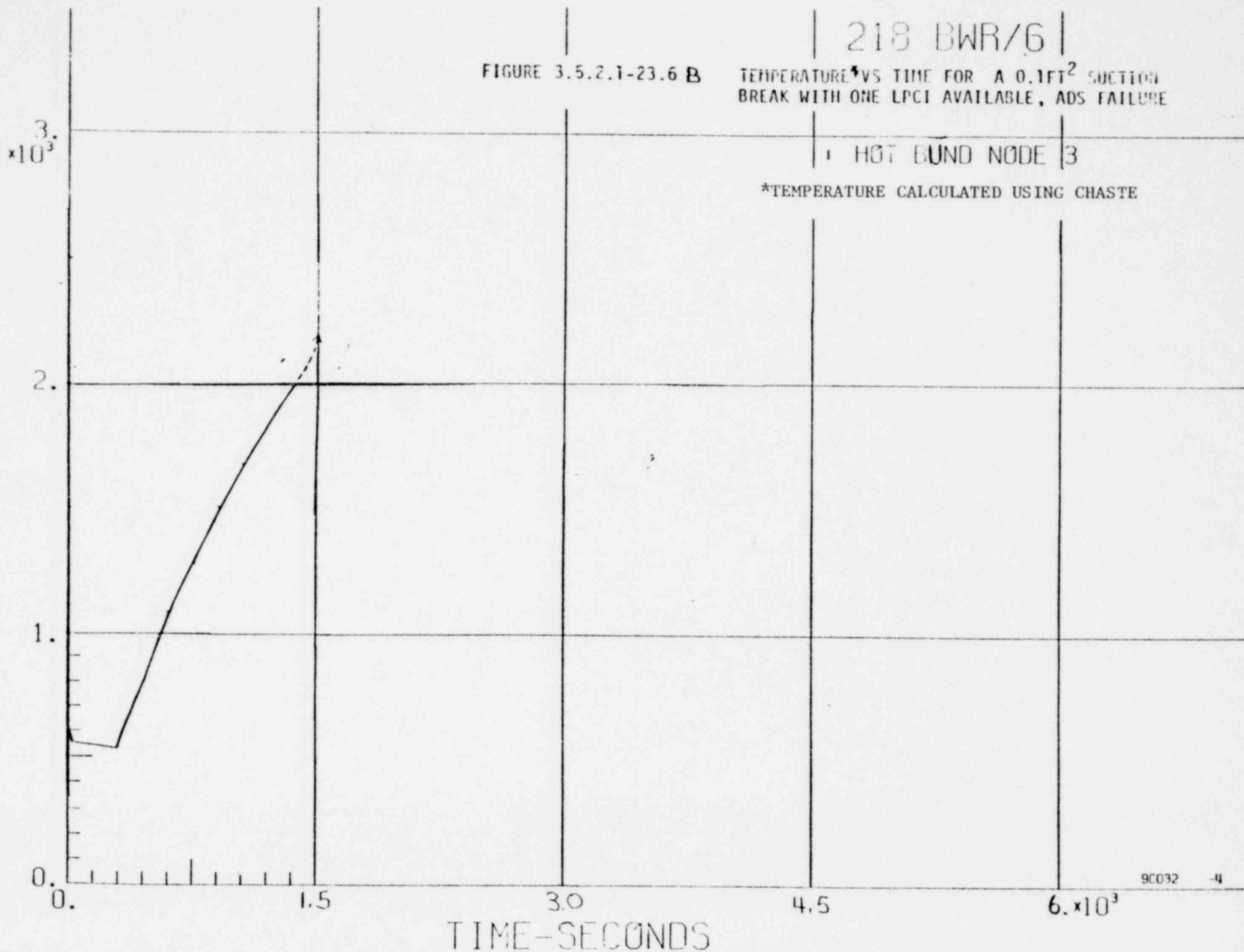
218 BWR/6

FIGURE 3.5.2.1-23.6 B

TEMPERATURE* VS TIME FOR A 0.1FT² SUCTION
BREAK WITH ONE LPCI AVAILABLE, ADS FAILURE

1 HOT BUND NODE 3

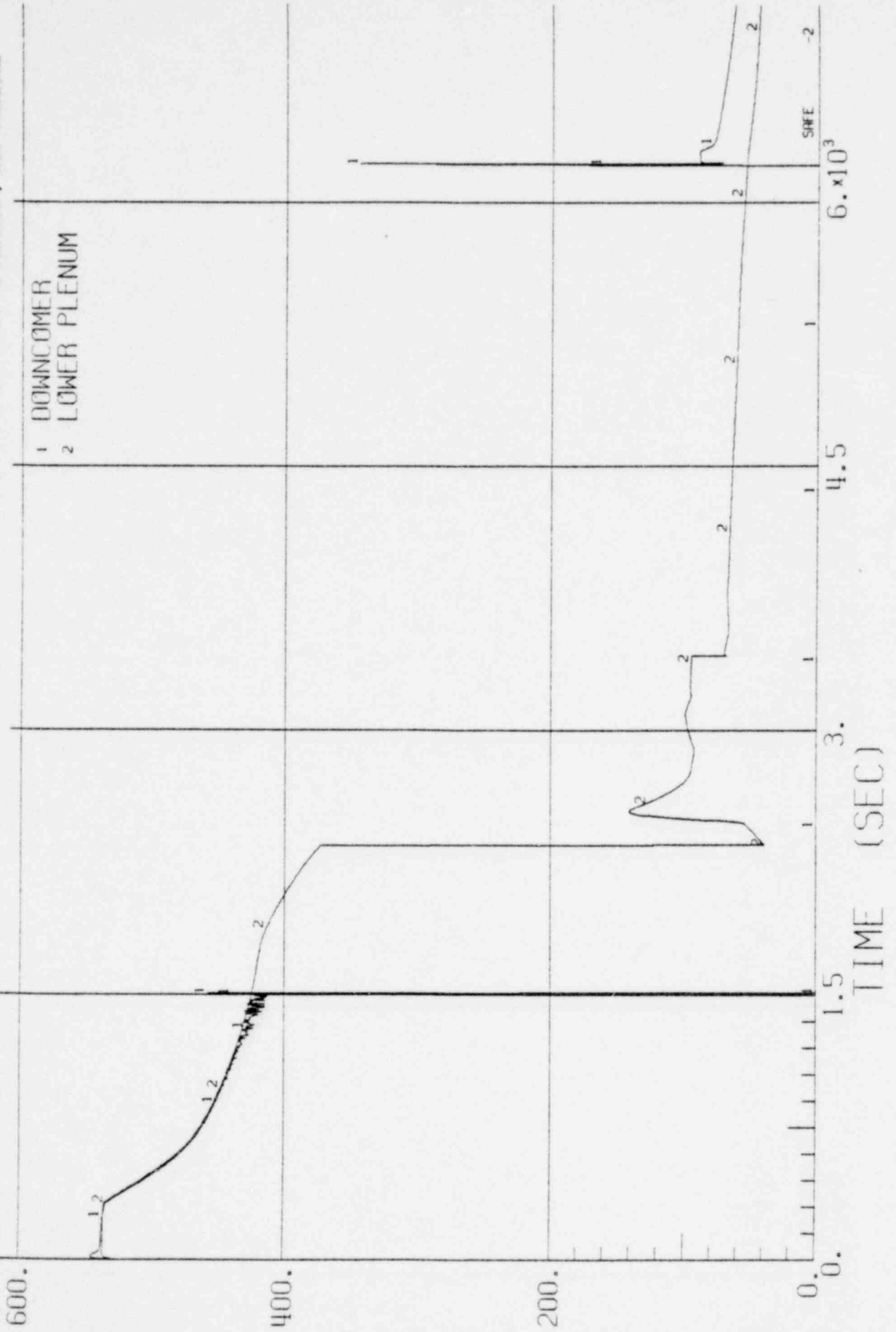
*TEMPERATURE CALCULATED USING CHASTE



BWR/6-218

FIGURE 3.5.2.1-23.7
ENTHALPY VS TIME FOR A 0.1FT² SUCTION
BREAK WITH ONE LPCI AVAILABLE, ADS FAILURE

1 DOWNCOMER
2 LOWER PLENUM

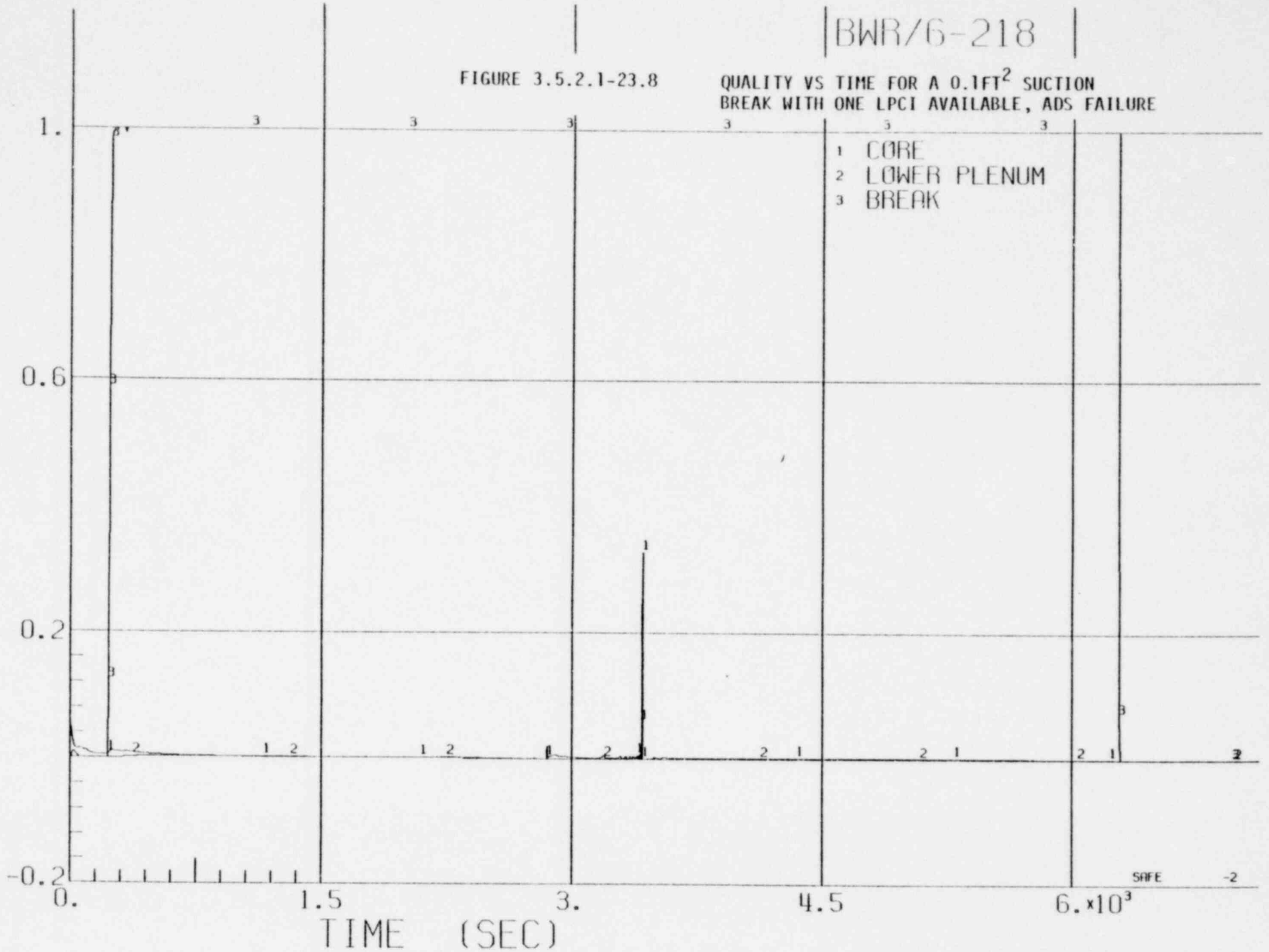


BWR/6-218

FIGURE 3.5.2.1-23.8

QUALITY VS TIME FOR A 0.1FT² SUCTION
BREAK WITH ONE LPCI AVAILABLE, ADS FAILURE

- 1 CORE
- 2 LOWER PLENUM
- 3 BREAK



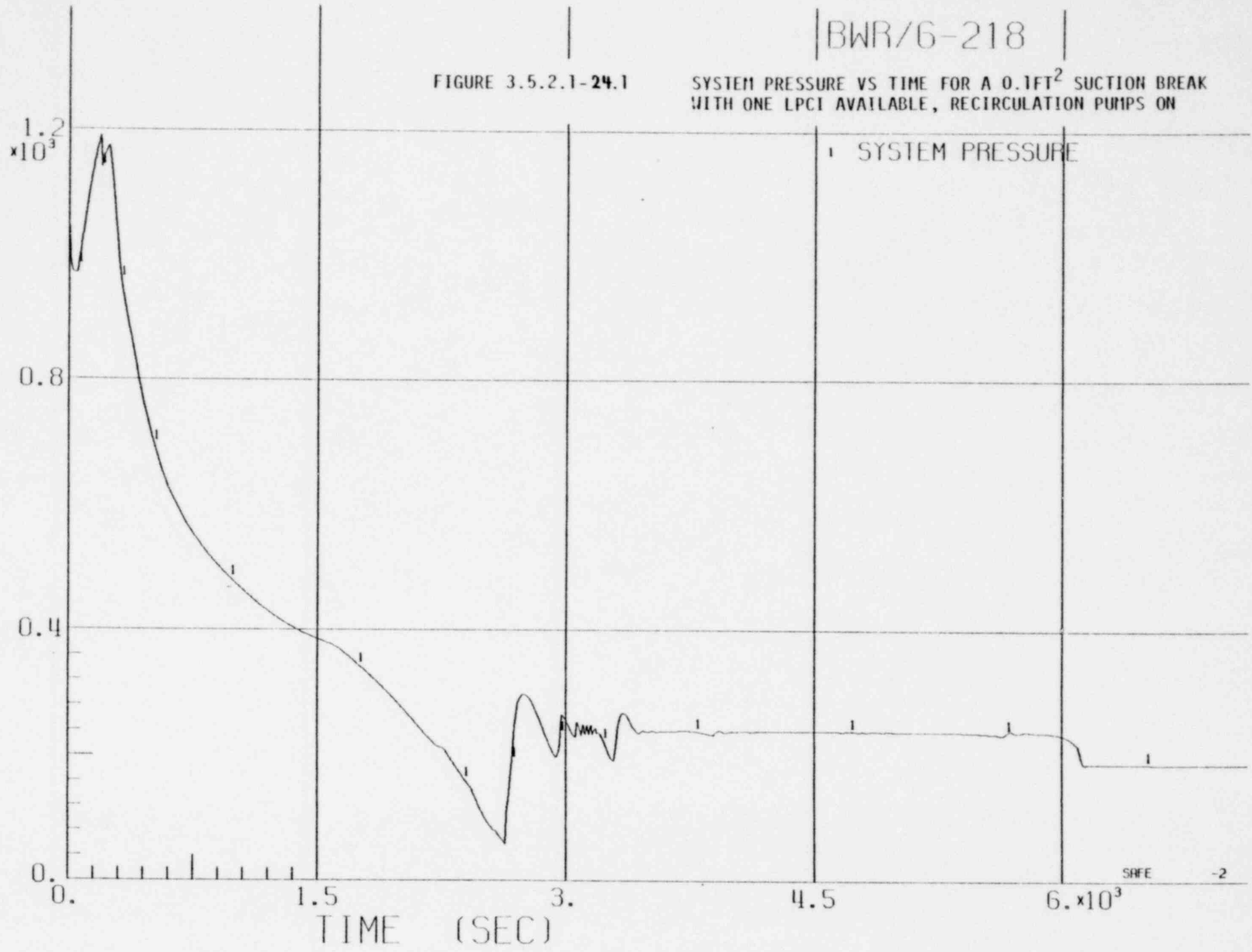
1549 189

BWR/6-218

FIGURE 3.5.2.1-24.1

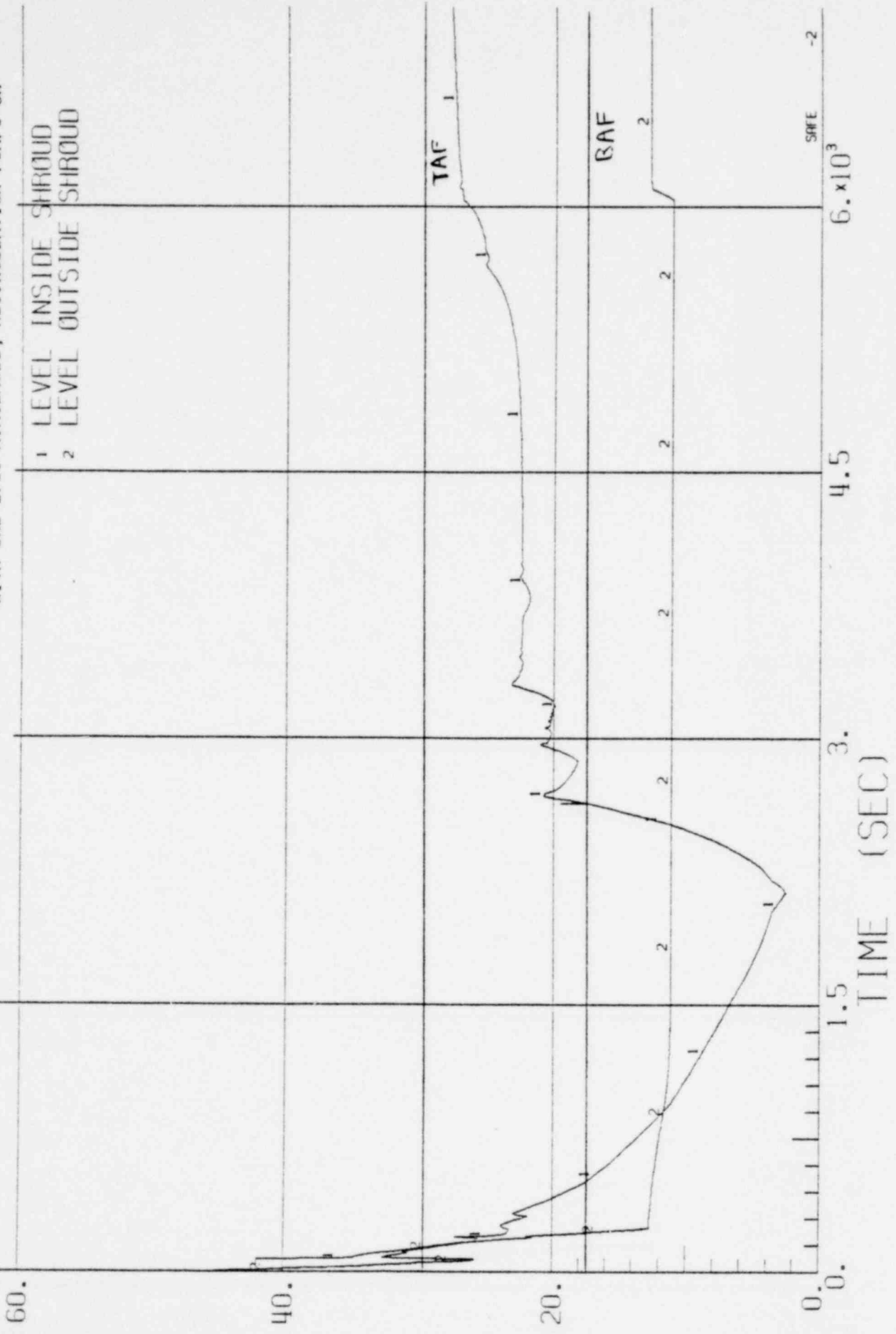
SYSTEM PRESSURE VS TIME FOR A 0.1FT² SUCTION BREAK WITH ONE LPCI AVAILABLE, RECIRCULATION PUMPS ON

1549 190
PRESSURE (PSIA)



BWR/6-218

FIGURE 3.5.2.1-24.2 WATER LEVEL VS TIME FOR A 0.1FT² SUCTION BREAK WITH ONE LPCI AVAILABLE, RECIRCULATION PUMPS ON



WATER LEVEL (FT)

TIME (SEC)

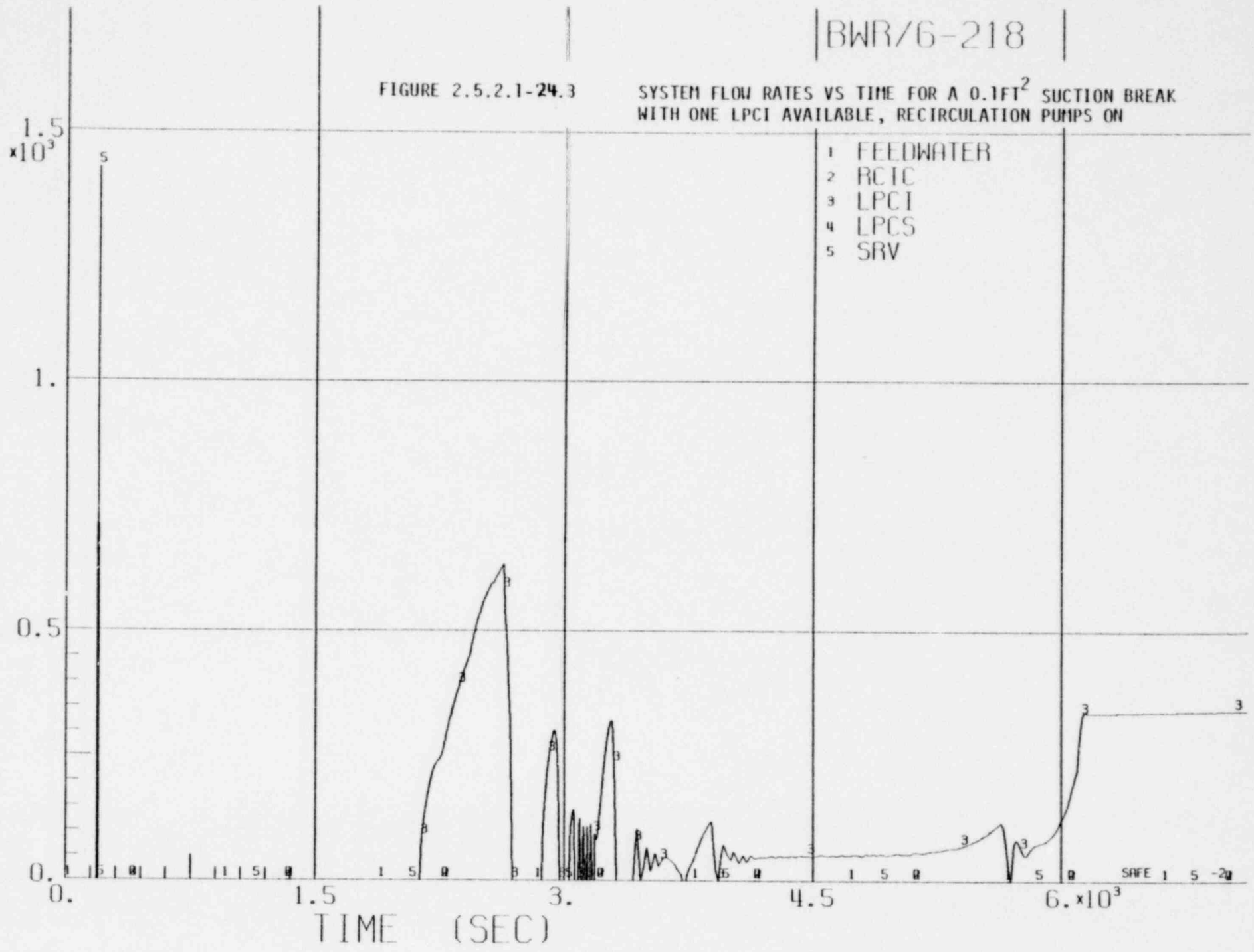
BWR/6-218

FIGURE 2.5.2.1-24.3

SYSTEM FLOW RATES VS TIME FOR A 0.1FT² SUCTION BREAK WITH ONE LPCI AVAILABLE, RECIRCULATION PUMPS ON

- 1 FEEDWATER
- 2 RCTC
- 3 LPCI
- 4 LPCS
- 5 SRV

661
1549
192
FLOW RATE (LBM/SEC)
MOT F

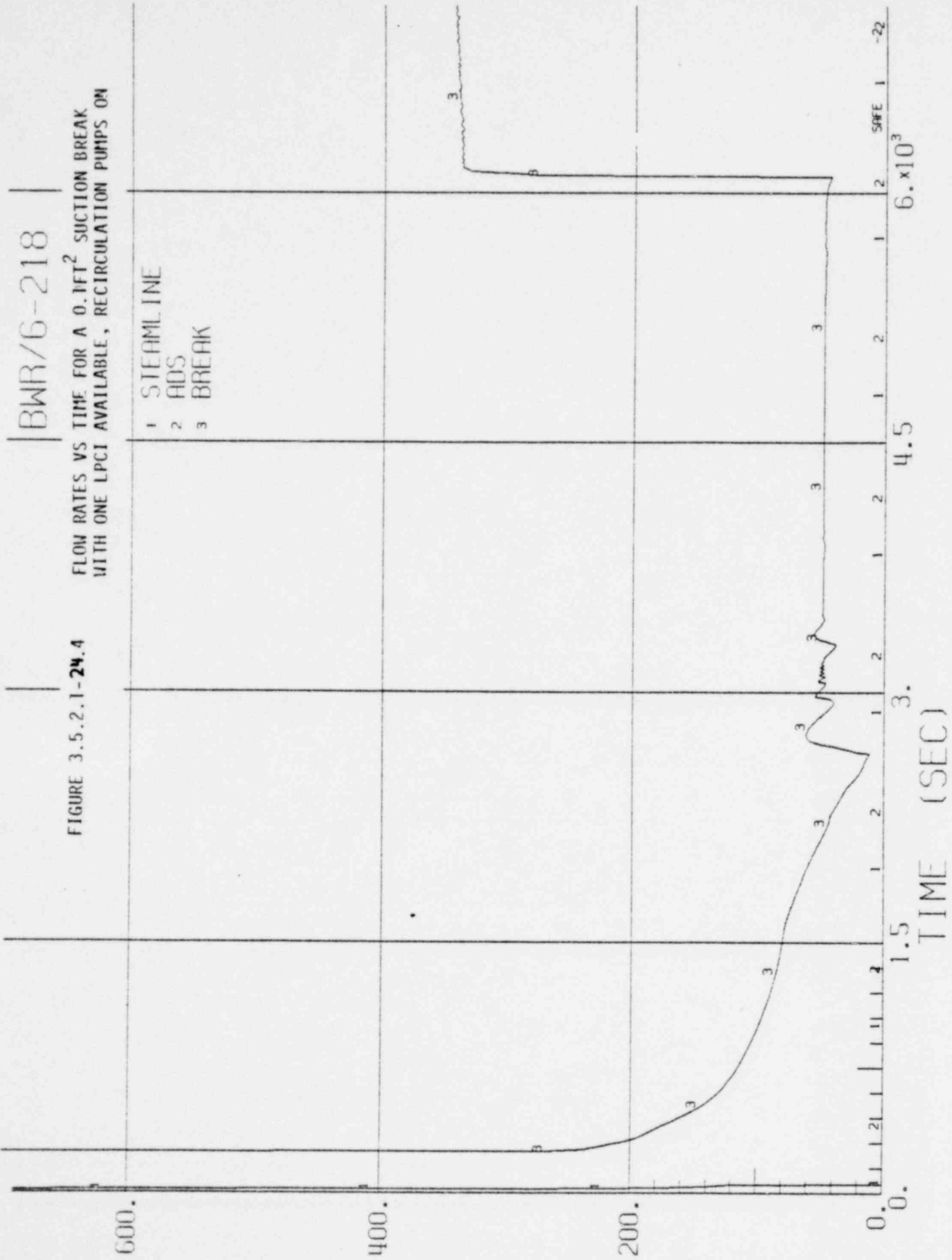


BWR/6-218

FIGURE 3.5.2.1-24.4

FLOW RATES VS TIME FOR A 0.1FT² SUCTION BREAK WITH ONE LPCI AVAILABLE, RECIRCULATION PUMPS ON

- 1 STEAMLINER
- 2 ADS
- 3 BREAK



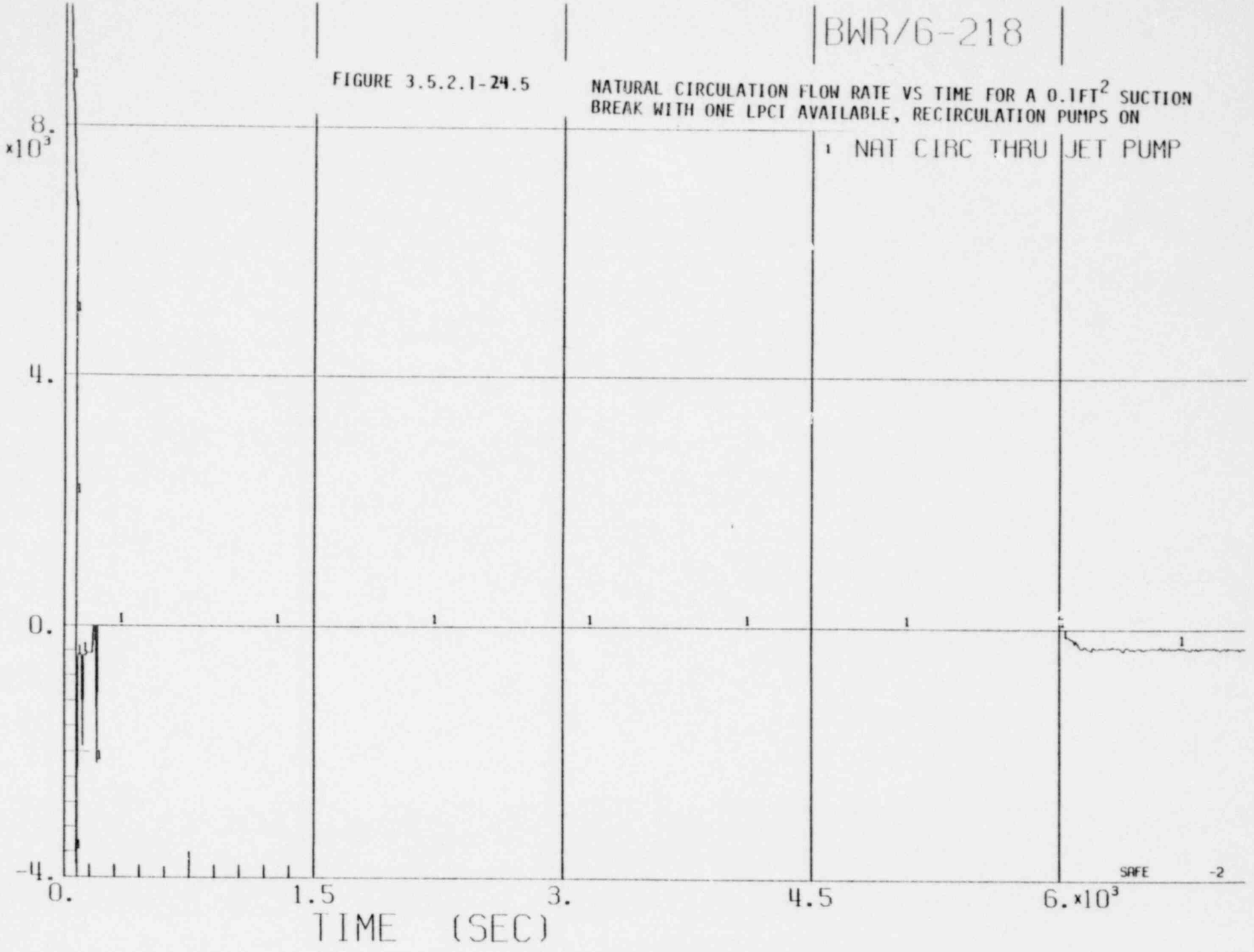
BWR/6-218

FIGURE 3.5.2.1-24.5

NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.1FT² SUCTION
BREAK WITH ONE LPCI AVAILABLE, RECIRCULATION PUMPS ON

1 NAT CIRC THRU JET PUMP

661 6451
1549 194
FLOW RATE (LBM/SEC)



219 1576

FIGURE 3.5.2.1-24.6A

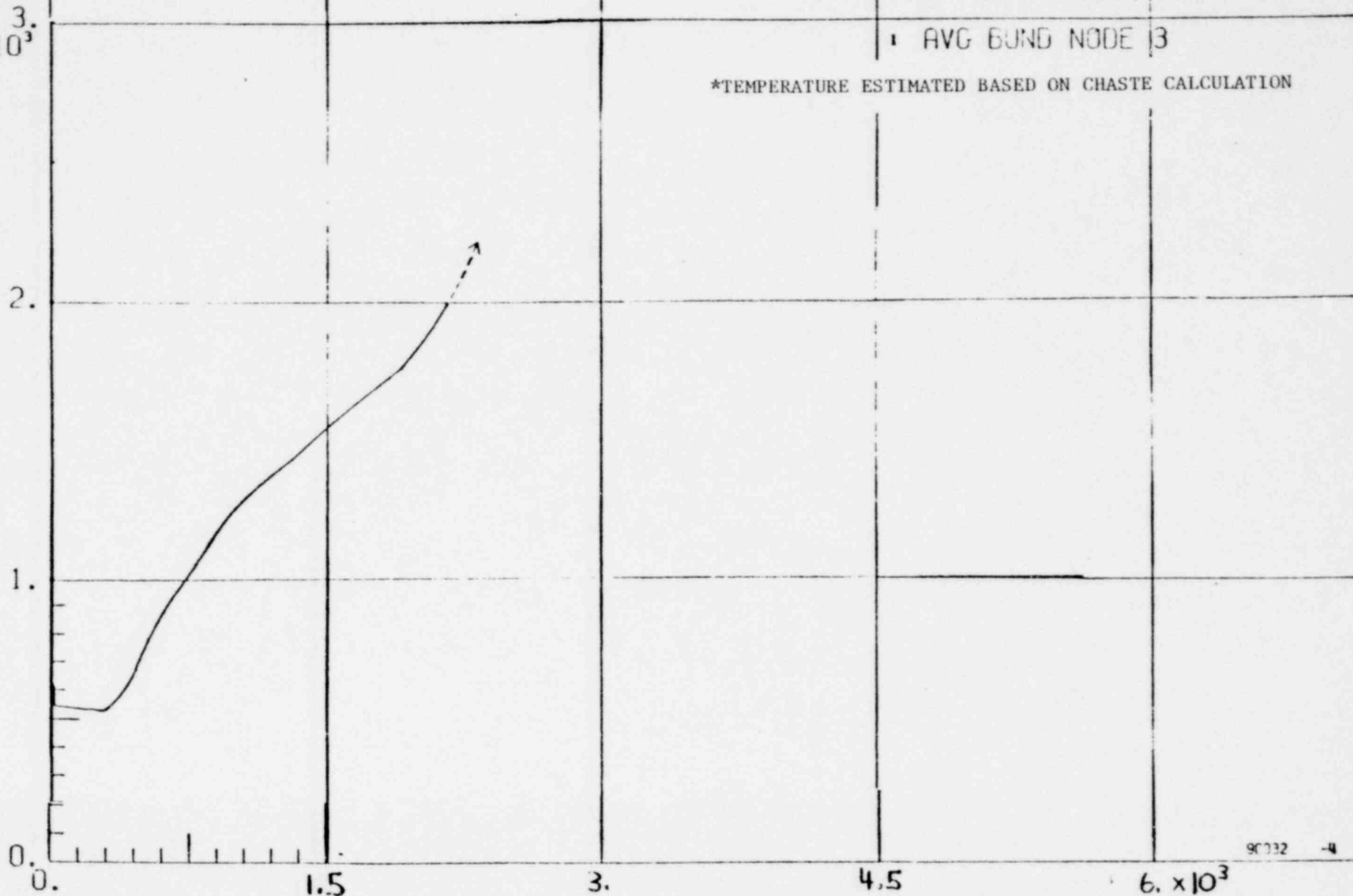
TEMPERATURE* VS TIME FOR A 0.1FT² SUCTION BREAK WITH ONE LPCI AVAILABLE, RECIRCULATION PUMPS ON

AVG BUND NODE 3

*TEMPERATURE ESTIMATED BASED ON CHASTE CALCULATION

PLHK CLAD TEM - DEG F

3.
x 10³



TIME - SECONDS

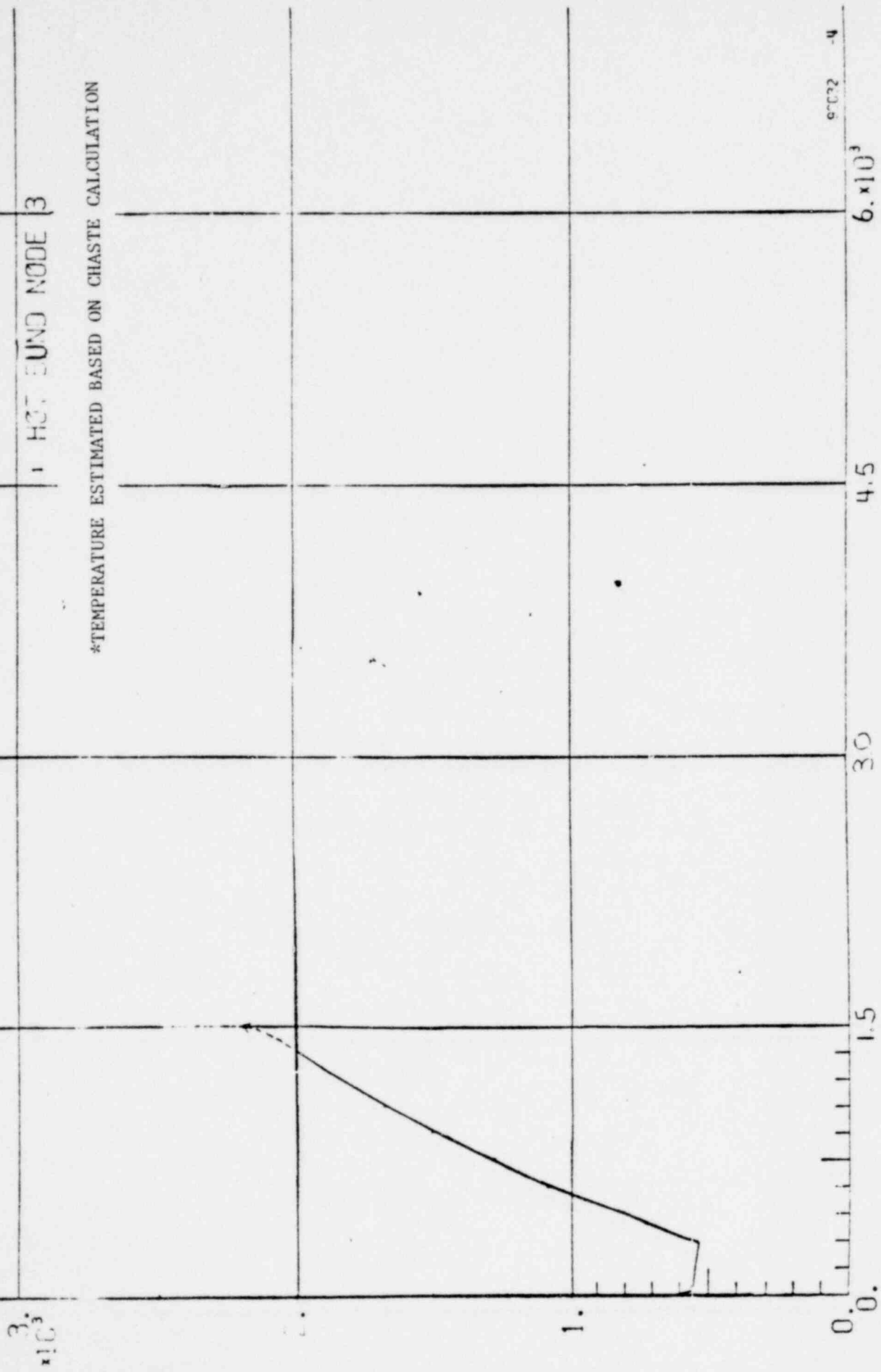
1549 195

219 EWR/6

FIGURE 3.5.2.1-24.6B TEMPERATURE VS TIME FOR A 0.1FT² SUCTION-BREAK WITH ONE LPCI AVAILABLE, RECIRCULATION PUMPS ON

1 HOT END NODE 3

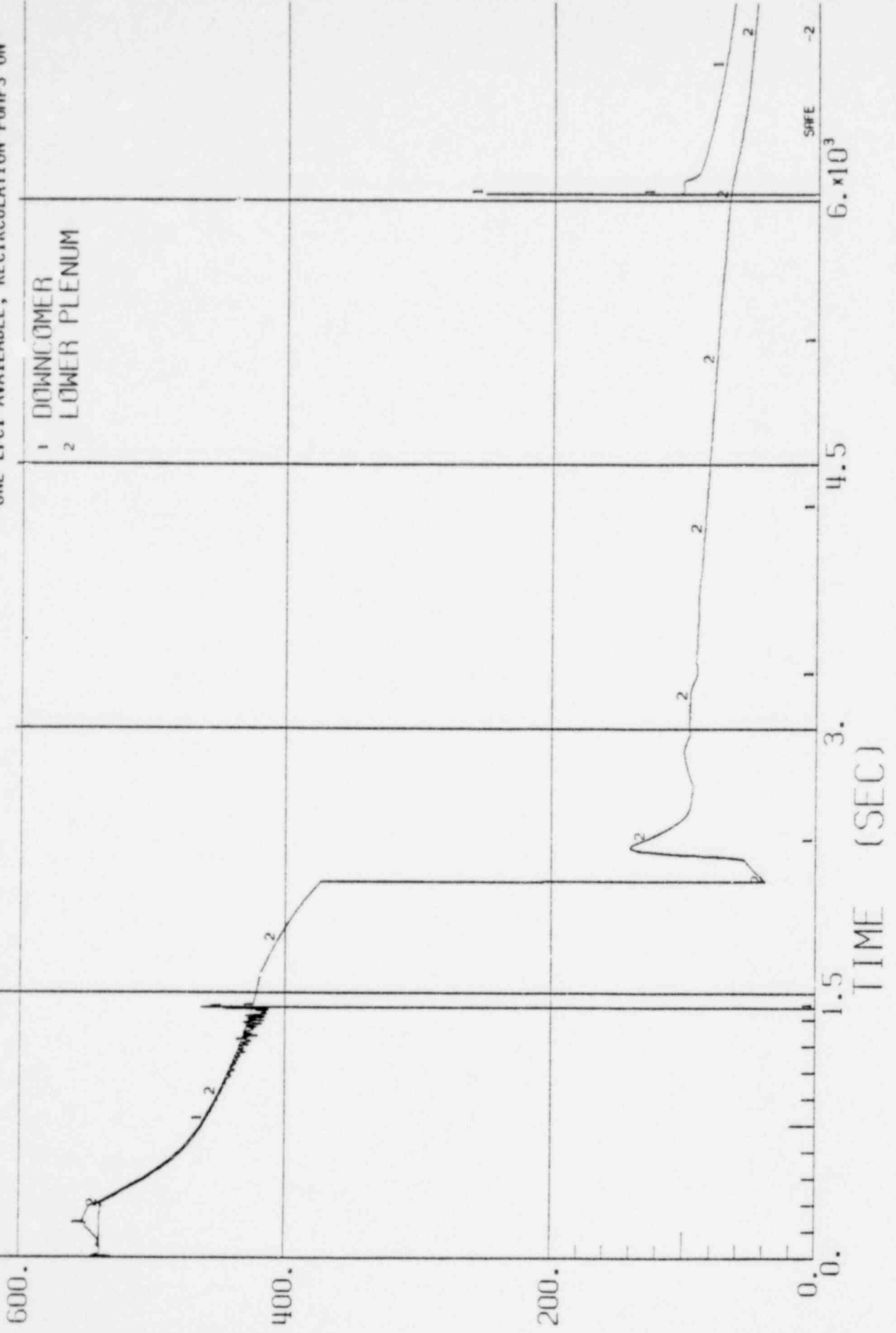
*TEMPERATURE ESTIMATED BASED ON CHASTE CALCULATION



BWR/6-218

FIGURE 3.5.2.1-2nd 7
ENTHALPY VS TIME FOR A SUCTION BREAK WITH
ONE LPCI AVAILABLE, RECIRCULATION PUMPS ON

1 DOWNCOMER
2 LOWER PLENUM

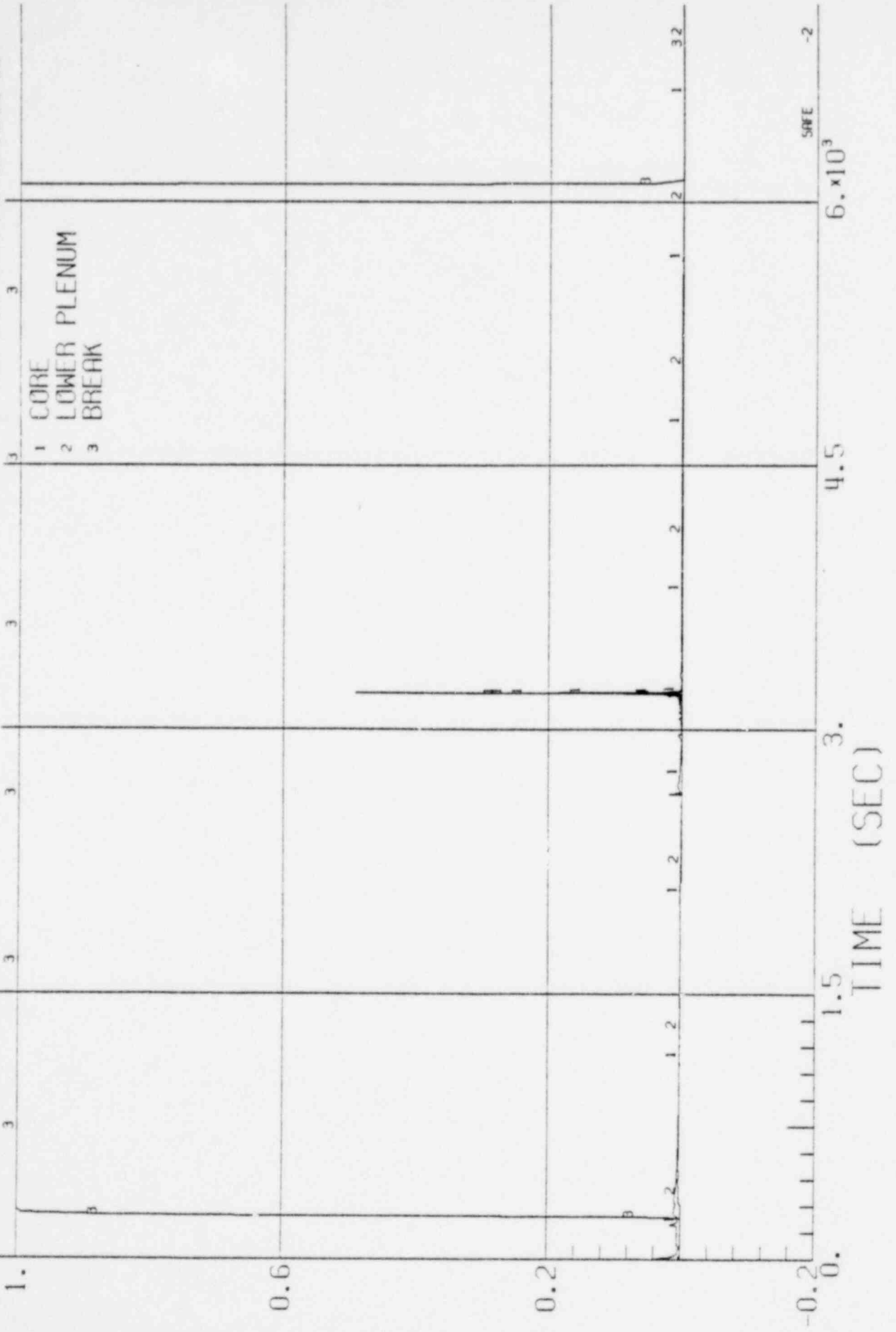


ENTHALPY (BTU/LBM)
1549 197

BWR/6-218

FIGURE 3.5.2.1-24.8

QUALITY VS TIME FOR A SUCTION BREAK WITH
ONE LPCI AVAILABLE, RECIRCULATION PUMPS ON



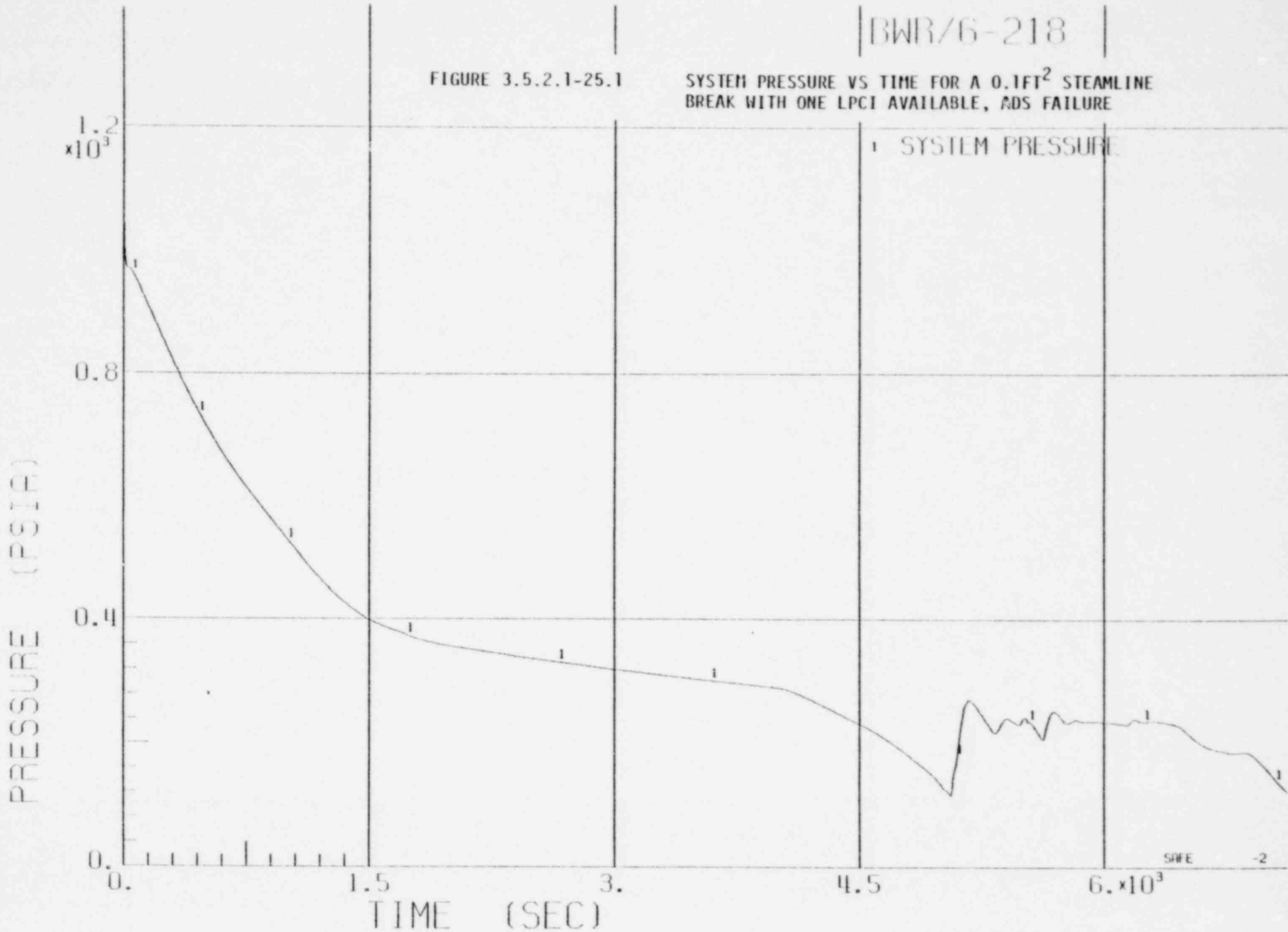
QUALITY

1549 198

BWR/6-218

FIGURE 3.5.2.1-25.1

SYSTEM PRESSURE VS TIME FOR A 0.1FT² STEAMLINE
BREAK WITH ONE LPCI AVAILABLE, ADS FAILURE



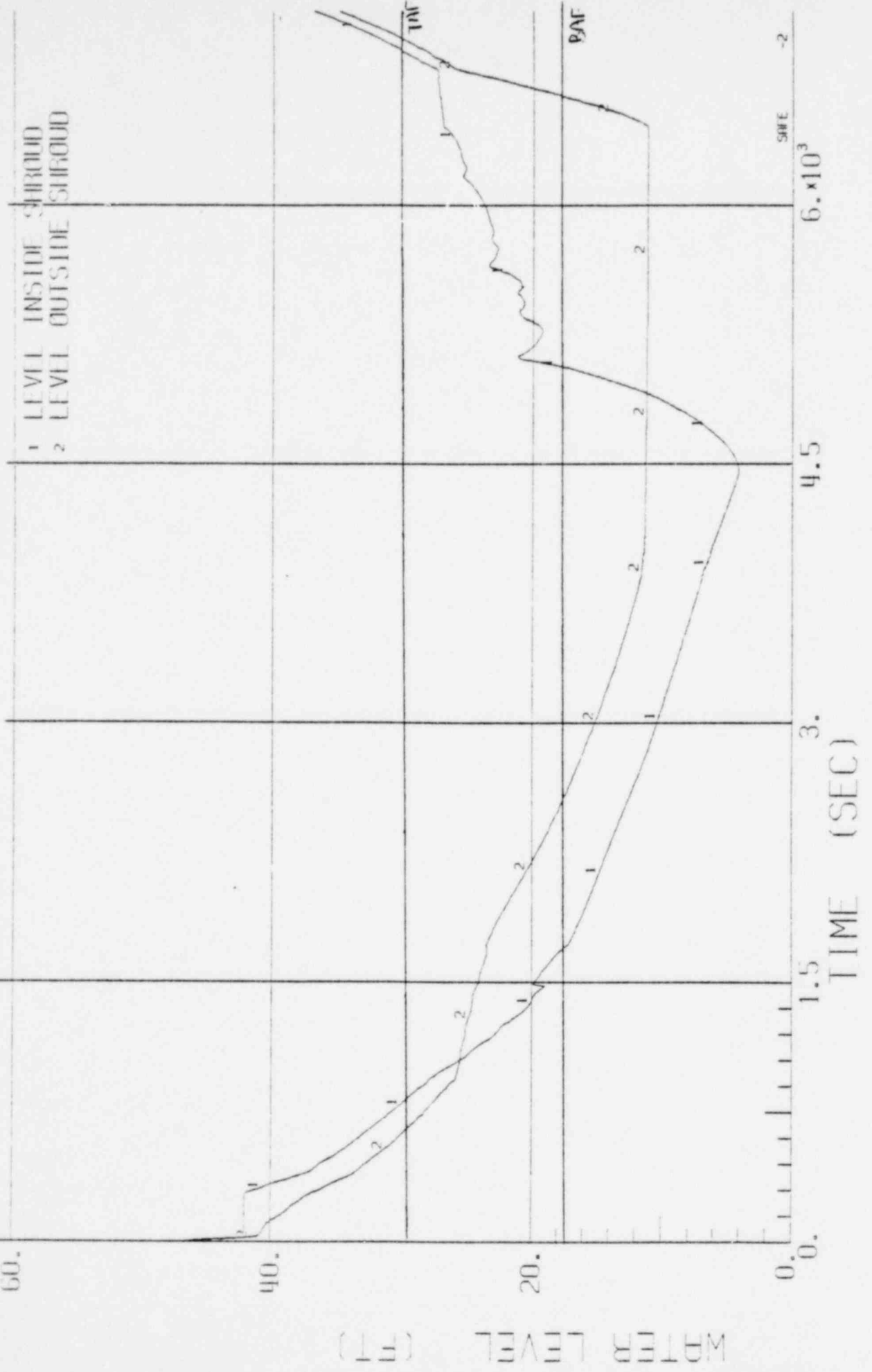
1549 199

SAFE

-2

BWR/6-218

FIGURE 3.5.2.1-25.2 WATER LEVEL VS TIME FOR A 0.1FT² STEAMLINE BREAK WITH ONE LPCI AVAILABLE, ADS FAILURE



BWR/6-218

FIGURE 3.5.2.1-25.3

SYSTEM FLOW RATES VS TIME FOR A 0.1FT² STEAMLINE
BREAK WITH ONE LPCI AVAILABLE, ADS FAILURE

- 1 FEEDWATER
- 2 RCIC
- 3 LPCI
- 4 LPCS
- 5 SRV

FLOW RATE (LBM/SEC)

1.5
x10³

1.

0.5

0.

TIME (SEC)

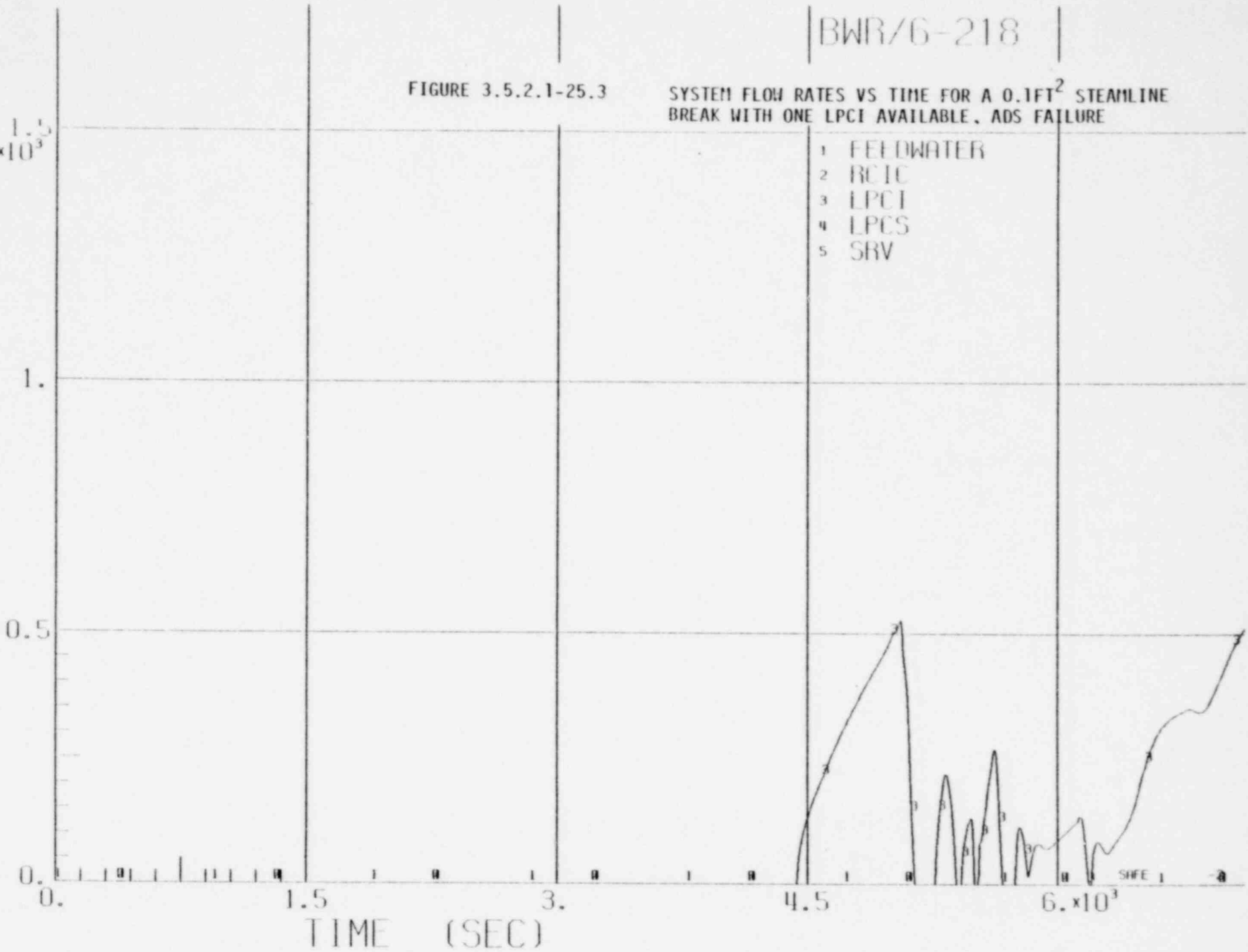
4.5

6. x10³

SAFE 1

-0

1549 201

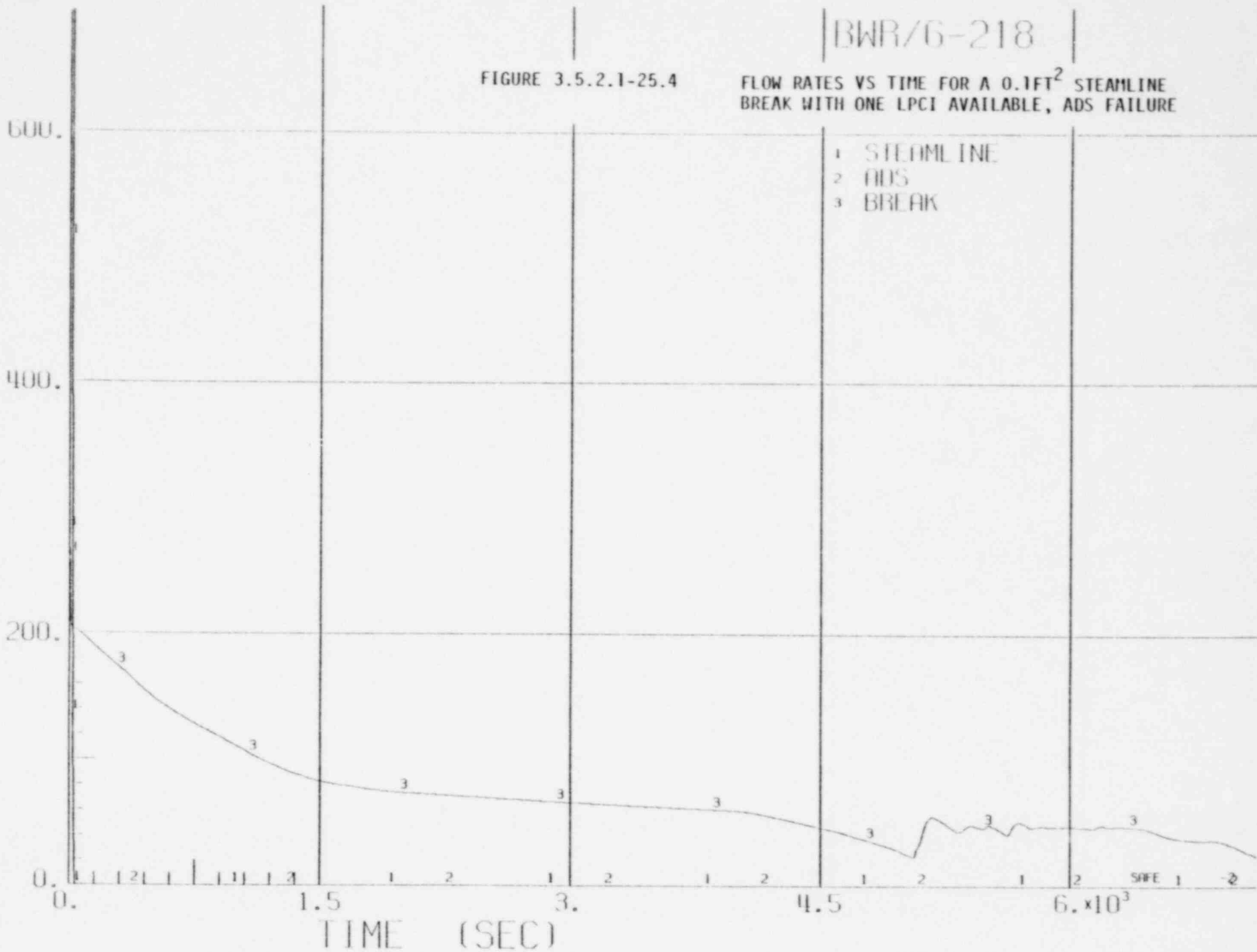


BWR/6-218

FIGURE 3.5.2.1-25.4

FLOW RATES VS TIME FOR A 0.1FT² STEAMLIN
BREAK WITH ONE LPCI AVAILABLE, ADS FAILURE

1549 202
MAY 1974
PAGE 2
(CES/MBT)



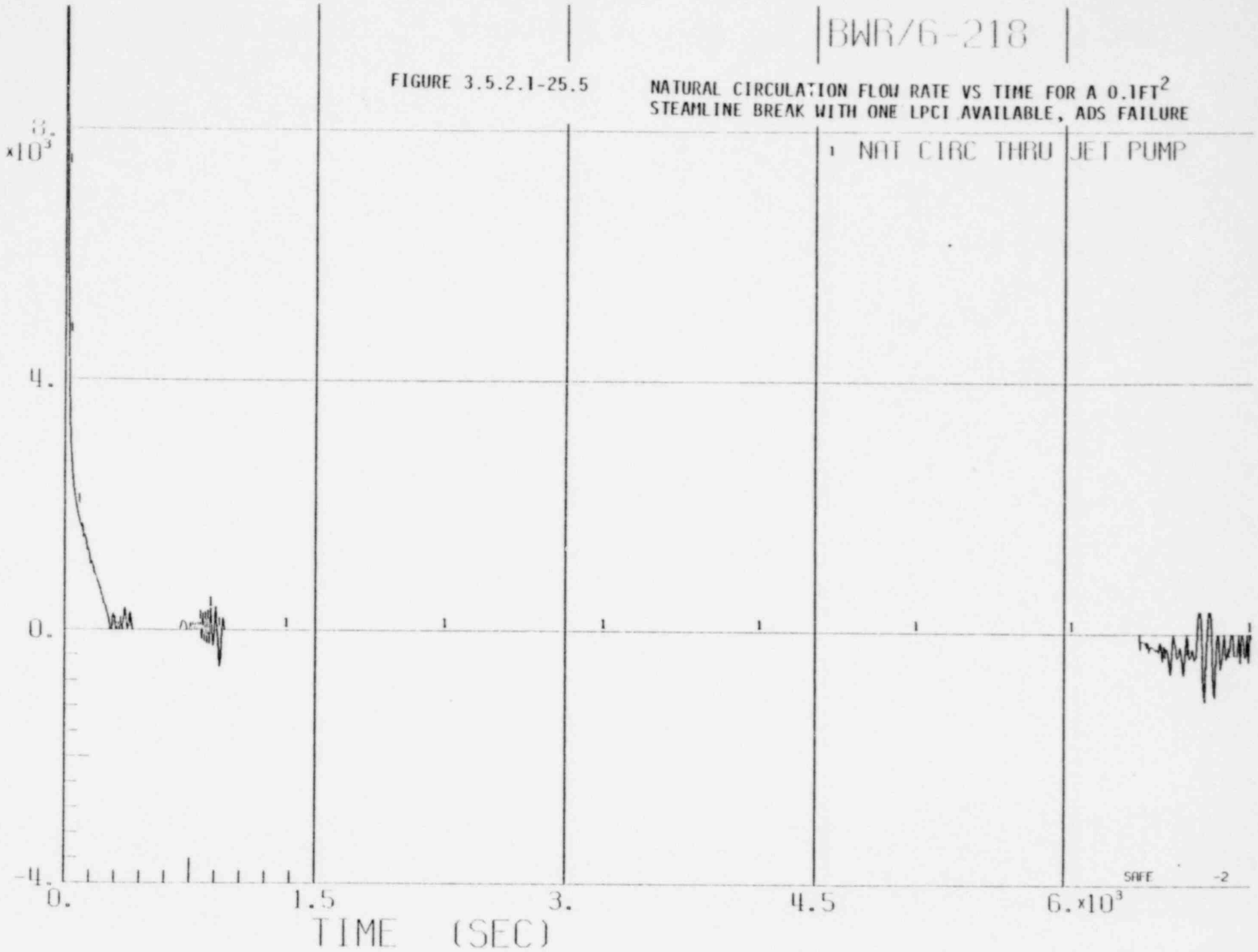
BWR/6-218

FIGURE 3.5.2.1-25.5

NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.1FT²
STEAMLINE BREAK WITH ONE LPCI AVAILABLE, ADS FAILURE

1 NAT CIRC THRU JET PUMP

1549 203
FLOW RATE (GPM)
M071



218 EWR/4

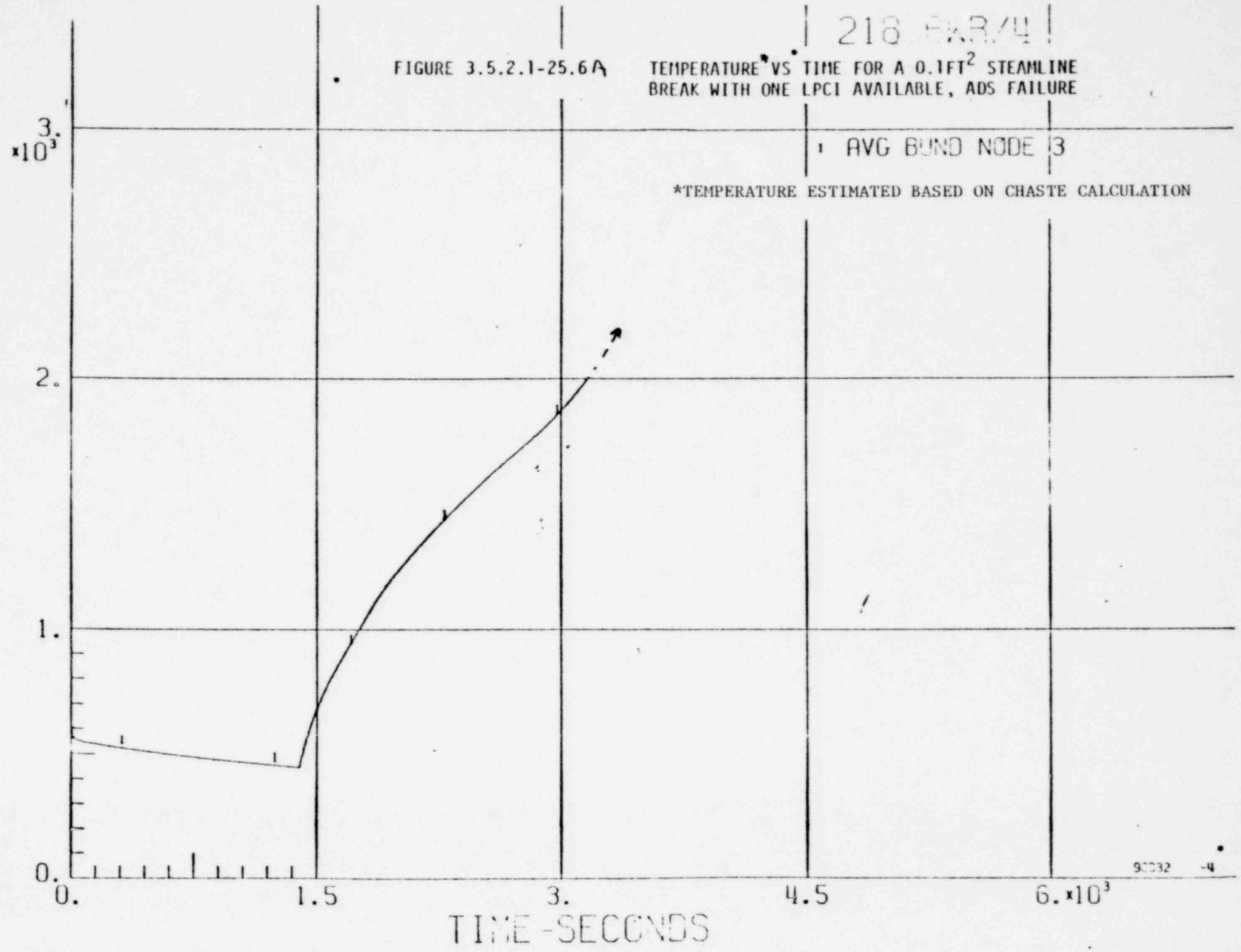
FIGURE 3.5.2.1-25.6A

TEMPERATURE VS TIME FOR A 0.1FT² STEAMLINE
BREAK WITH ONE LPCI AVAILABLE, ADS FAILURE

AVG BUND NODE 3

*TEMPERATURE ESTIMATED BASED ON CHASTE CALCULATION

PEAK CLAD TEMP - DEG F



1549 204

PEAK CLAD TEMP - DEG F
1549 205

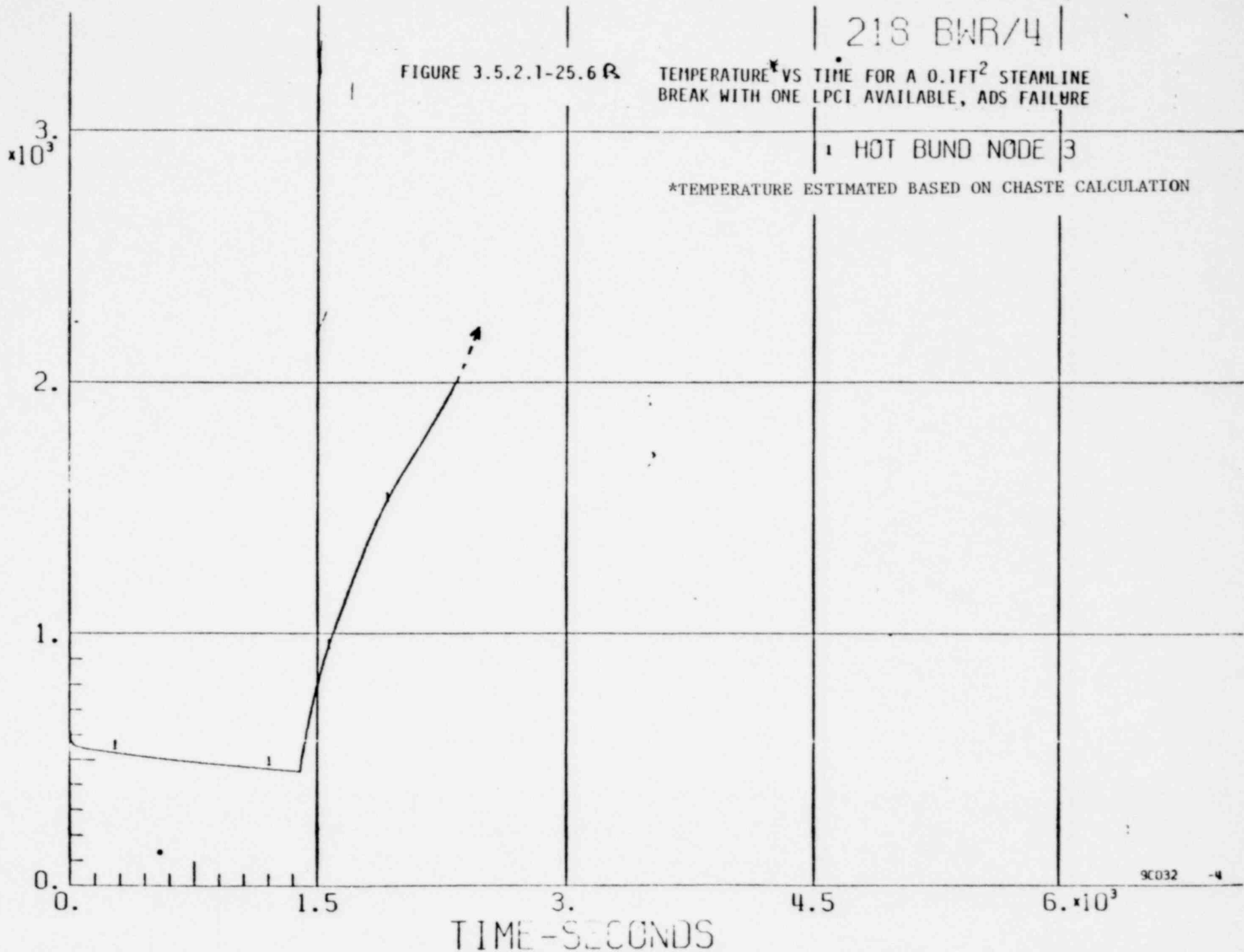
218 BWR/4

FIGURE 3.5.2.1-25.6 R

TEMPERATURE* VS TIME FOR A 0.1FT² STEAMLINE
BREAK WITH ONE LPCI AVAILABLE, ADS FAILURE

HOT BUND NODE 3

*TEMPERATURE ESTIMATED BASED ON CHASTE CALCULATION



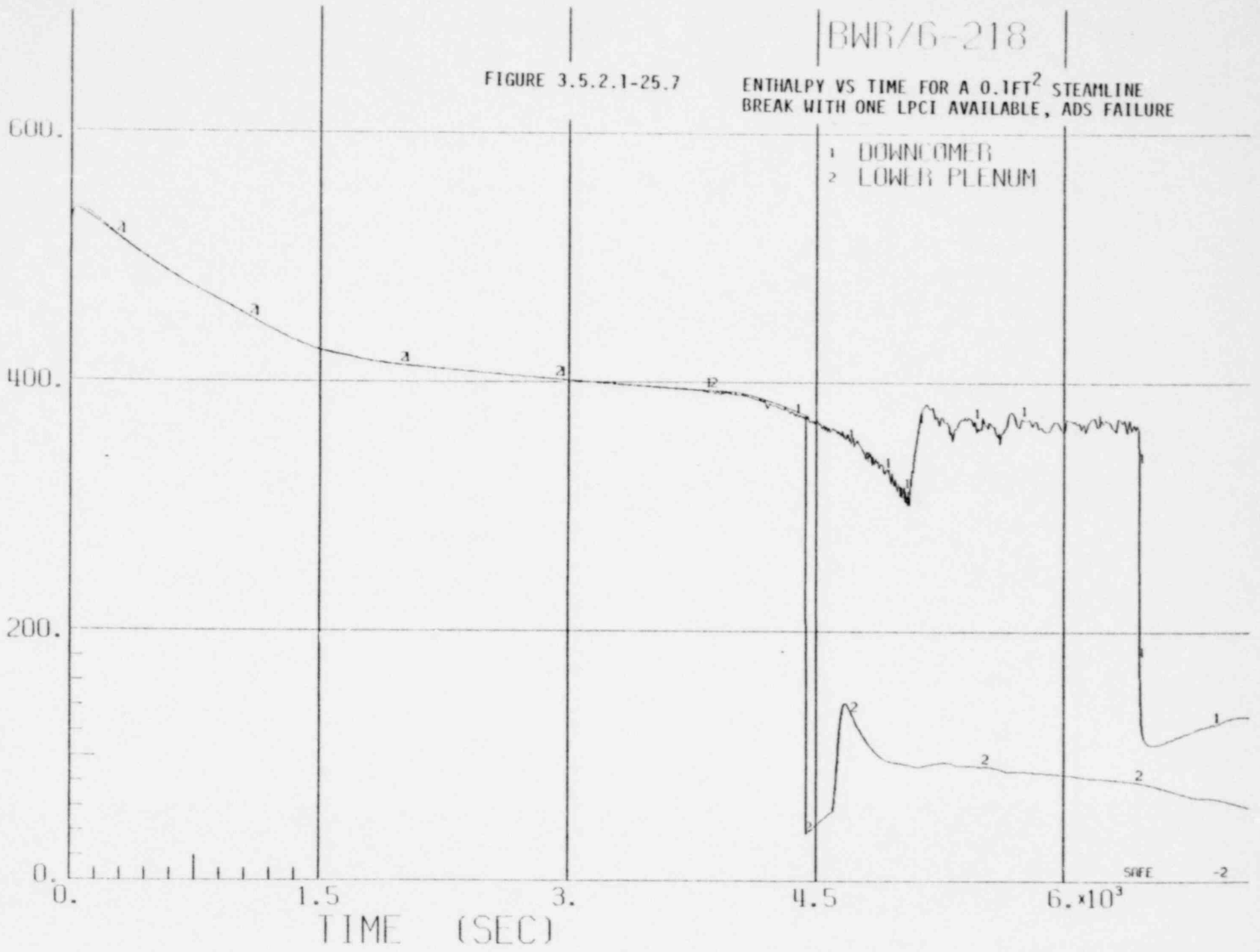
BWR/6-218

FIGURE 3.5.2.1-25.7

ENTHALPY VS TIME FOR A 0.1FT² STEAMLINE
BREAK WITH ONE LPCI AVAILABLE, ADS FAILURE

- 1 DOWNCOMER
- 2 LOWER PLENUM

ENTHALPY (BTU/LBM)



1549 206

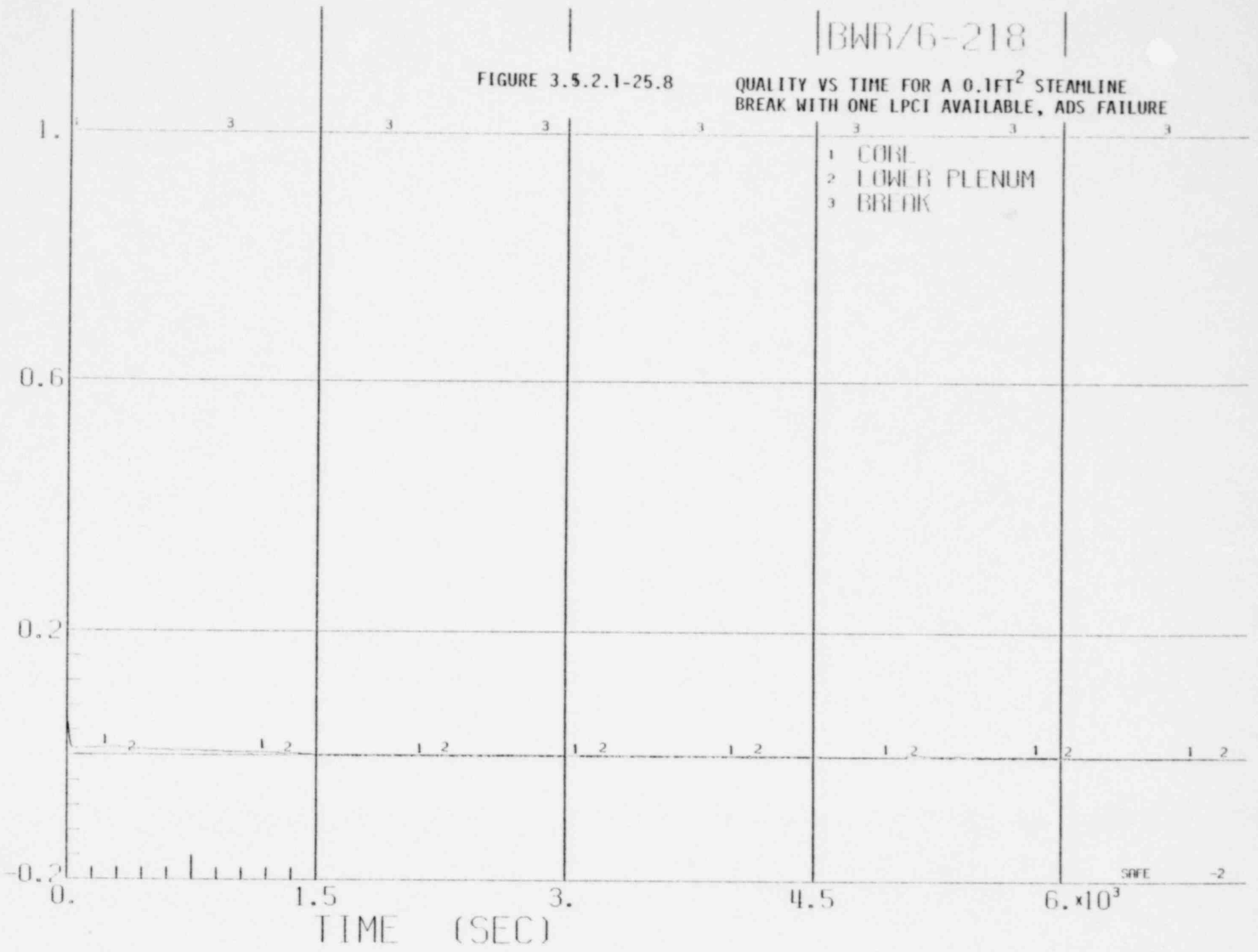
BWR/6-218

FIGURE 3.5.2.1-25.8

QUALITY VS TIME FOR A 0.1FT² STEAMLINE
BREAK WITH ONE LPCI AVAILABLE, ADS FAILURE

- 1 CORE
- 2 LOWER PLENUM
- 3 BREAK

QUALITY



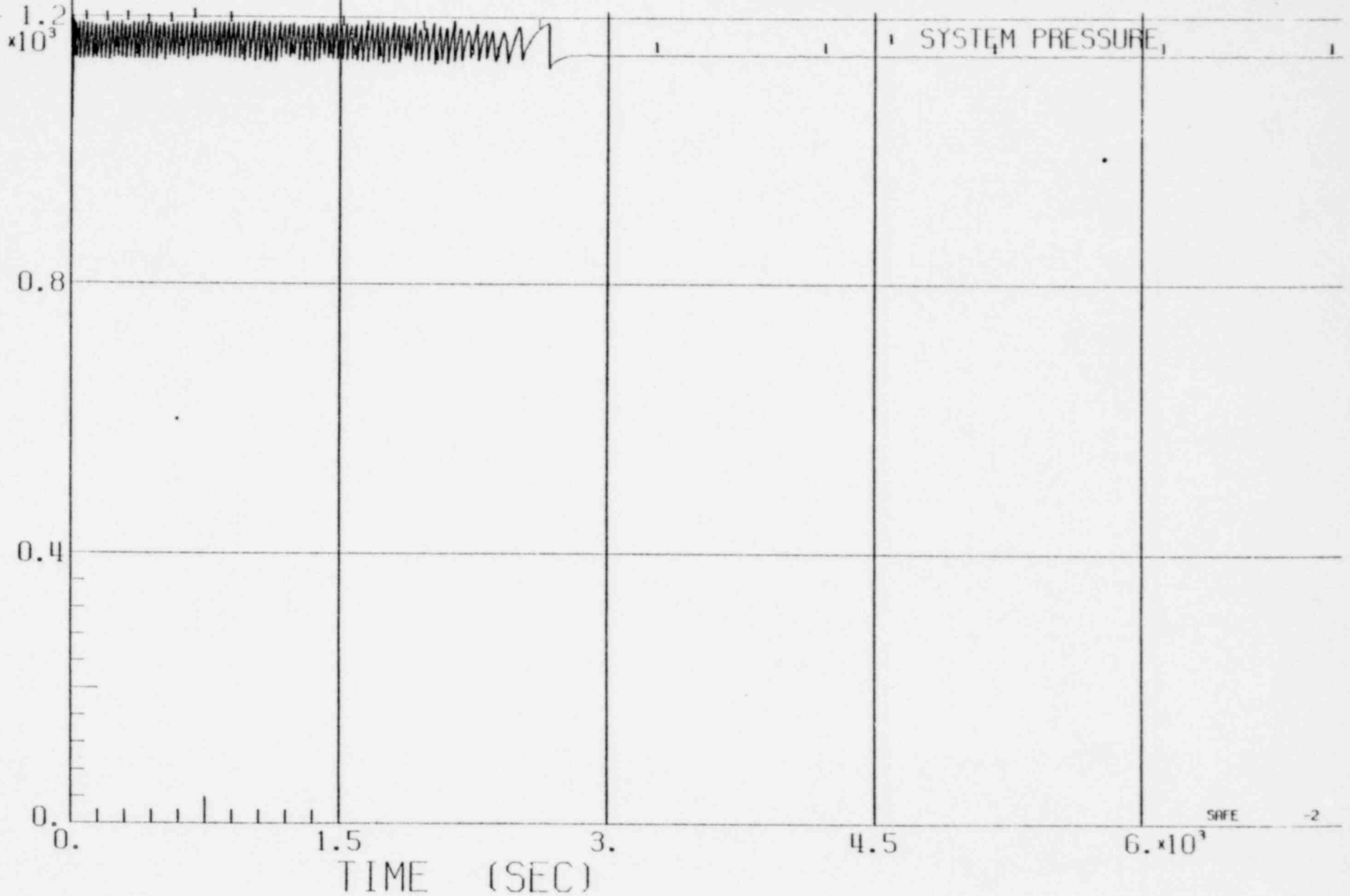
1549 207

BWR/6-218

FIGURE 3.5.2.1-26.1

SYSTEM PRESSURE VS TIME FOR AN ISOLATION WITH NO ADS,
LOW PRESSURE SYSTEMS ONLY, RECIRCULATION PUMPS OFF

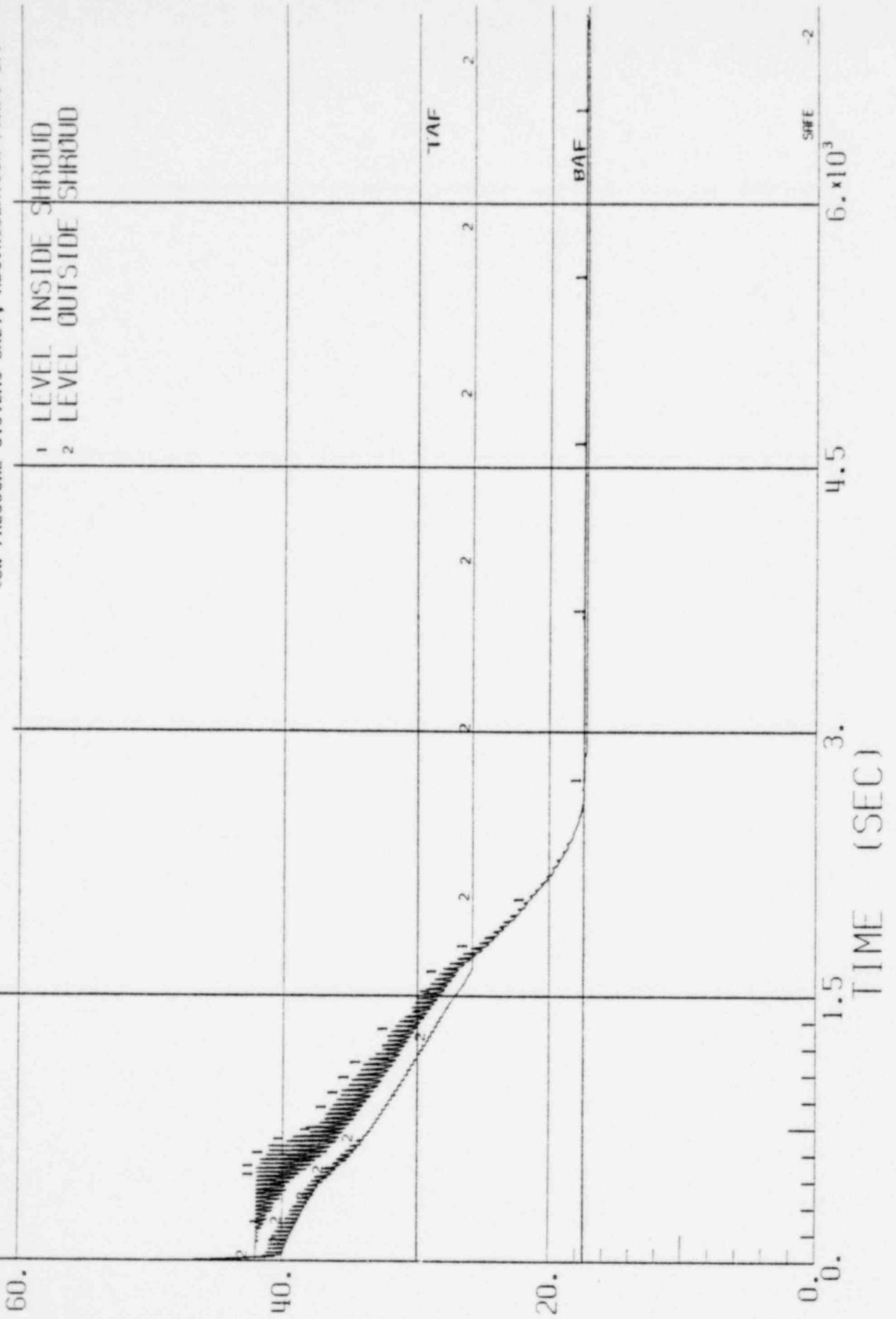
802 6451
PRESSURE (PSIA)
1549
208



BWR/6-218

FIGURE 3.5.2.1-26.2 WATER LEVEL VS TIME FOR ANISOLATION WITH NO ADS,
LOW PRESSURE SYSTEMS ONLY, RECIRCULATION PUMPS OFF

1 LEVEL INSIDE SHROUD
2 LEVEL OUTSIDE SHROUD



1549 209 WATER LEVEL (FT)

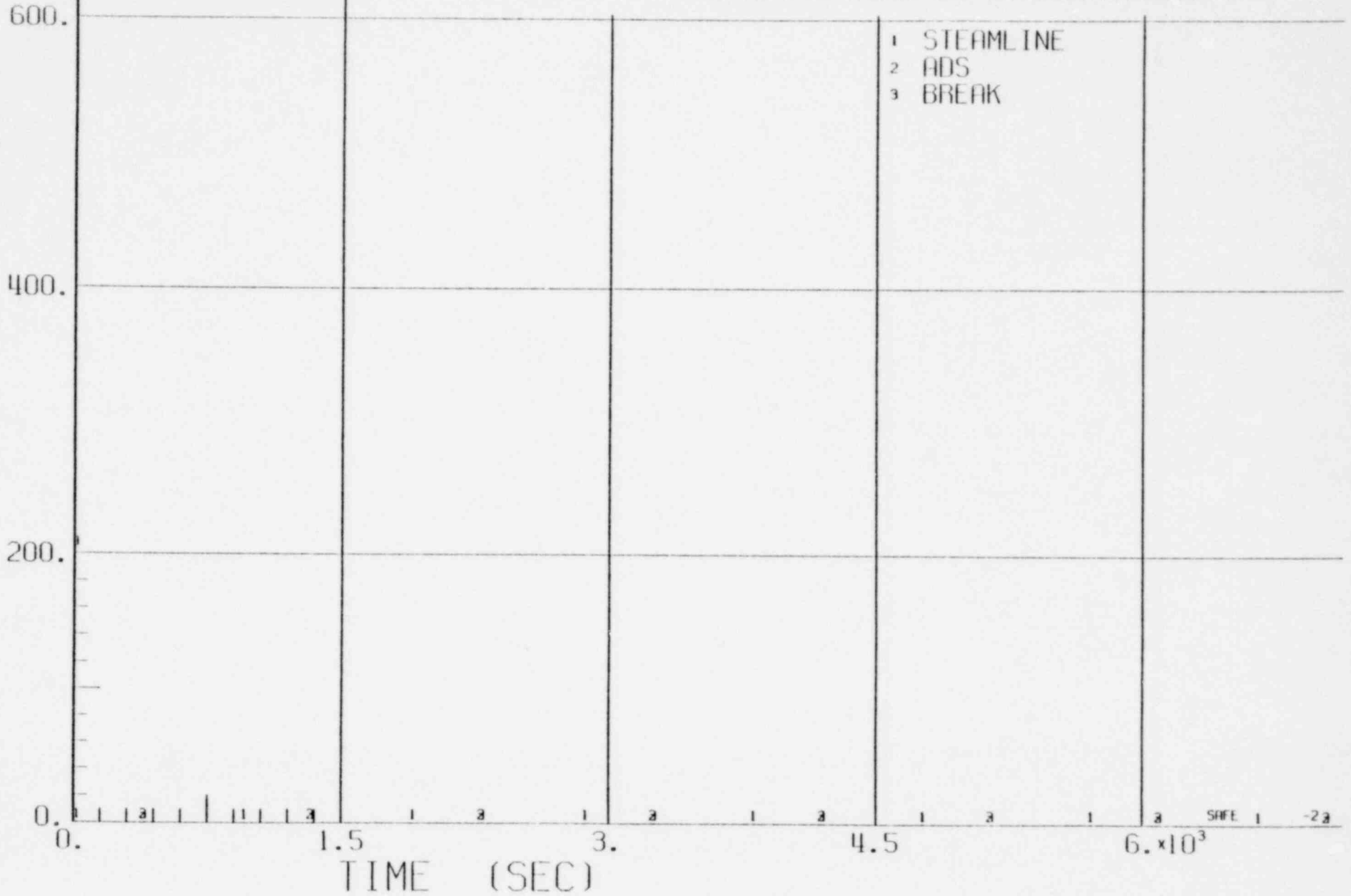
BWR/6-218

FIGURE 3.5.2.1-26.4

FLOW RATES VS TIME FOR AN ISOLATION WITH NO ADS,
LOW PRESSURE SYSTEMS ONLY RECIRCULATION PUMPS OFF

FLOW RATE (LBM/SEC)

- 1 STEAMLINER
- 2 ADS
- 3 BREAK



1549 211

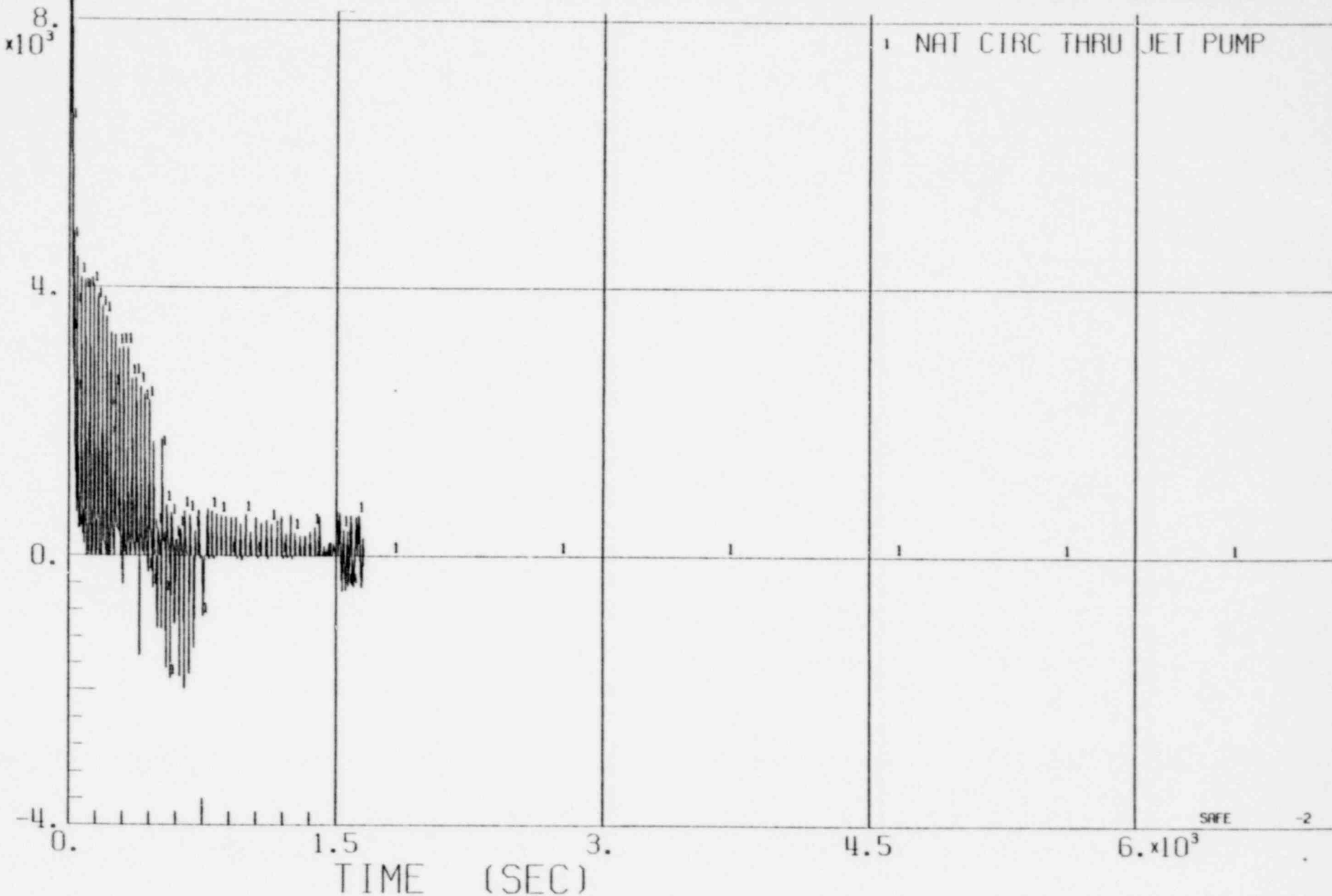
BWR/6-218

FIGURE 3.5.2.1-26.5

NATURAL CIRCULATION FLOW RATE VS TIME FOR AN ISOLATION WITH NO ADS, LOW PRESSURE SYSTEMS ONLY, RECIRCULATION PUMPS OFF

NAT CIRC THRU JET PUMP

FLOW RATE (LBM/SEC)
ETAH M071



1549 212

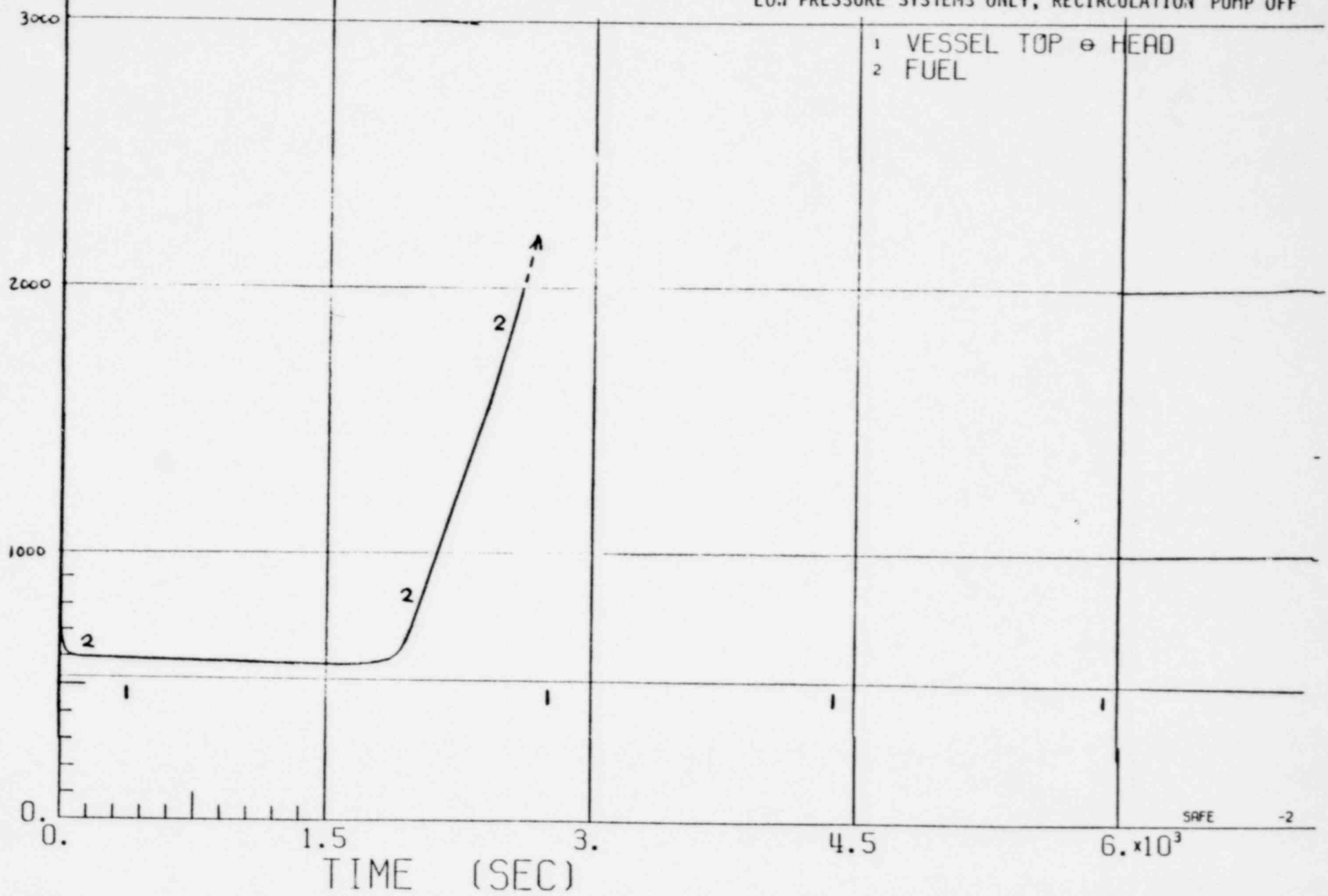
BWR/6-218

FIGURE 3.5.2.1-26.6

TEMPERATURE VS TIME FOR AN ISOLATION WITH NO ADS,
LO:1 PRESSURE SYSTEMS ONLY, RECIRCULATION PUMP OFF

- 1 VESSEL TOP & HEAD
- 2 FUEL

TEMPERATURE (DEG F)

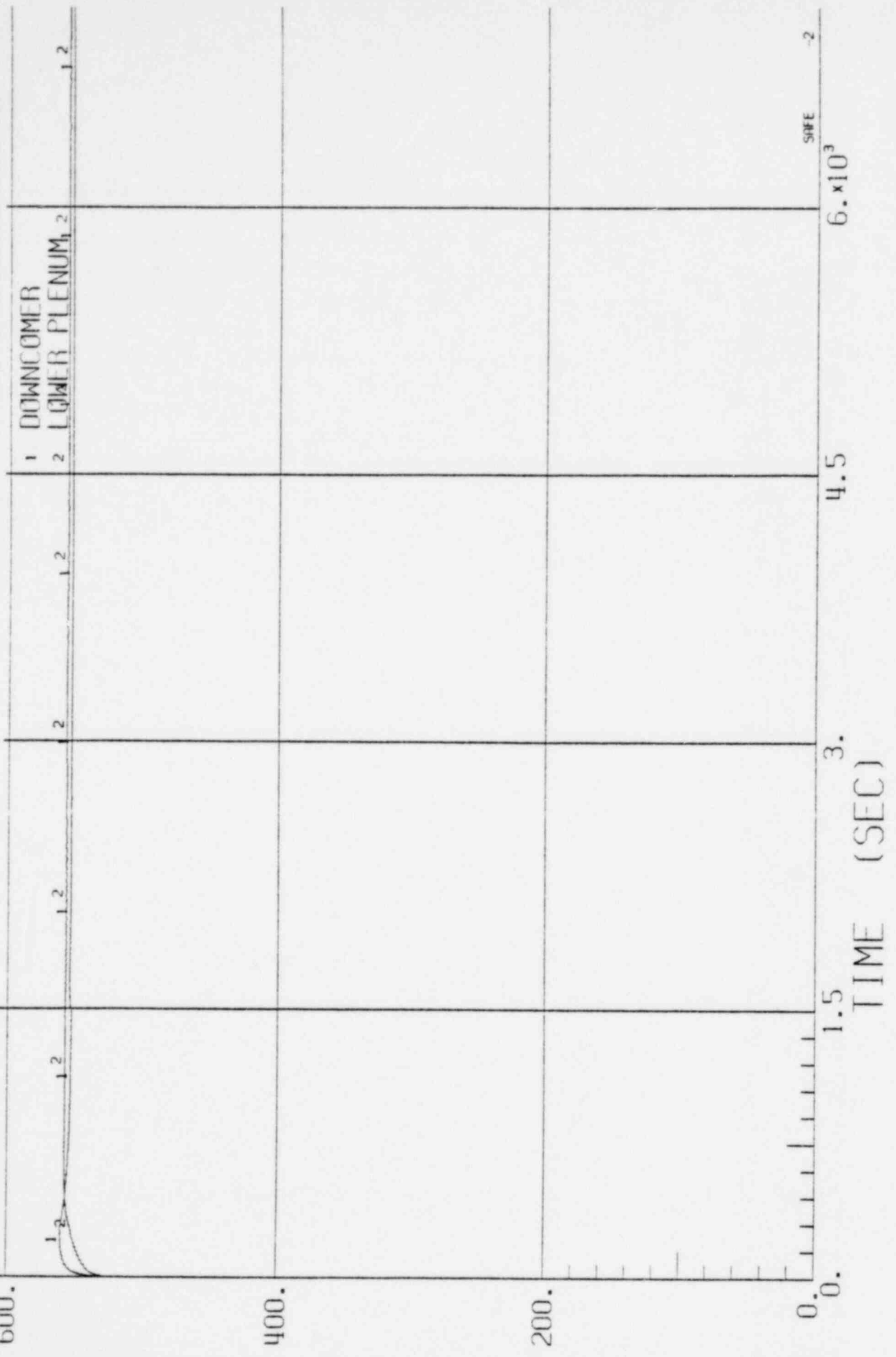


1549 213

BWR/6-218

FIGURE 3.5.2.1-26.7

ENTHALPY VS TIME FOR AN ISOLATION WITH NO ADS, LOW
PRESSURE SYSTEMS ONLY, RECIRCULATION PUMPS OFF



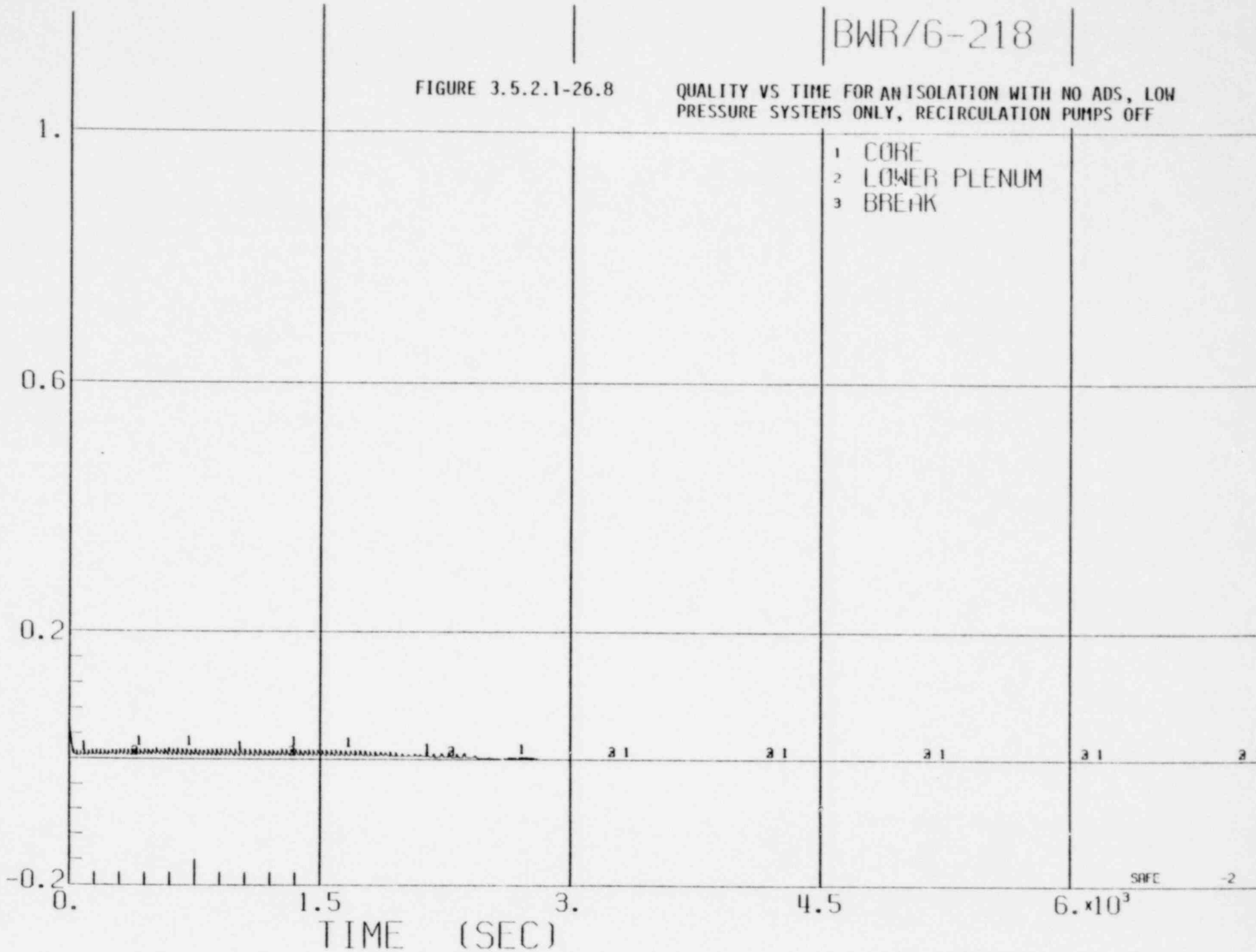
ENTHALPY (BTU/LBM)
1549 214

BWR/6-218

FIGURE 3.5.2.1-26.8

QUALITY VS TIME FOR AN ISOLATION WITH NO ADS, LOW
PRESSURE SYSTEMS ONLY, RECIRCULATION PUMPS OFF

- 1 CORE
- 2 LOWER PLENUM
- 3 BREAK

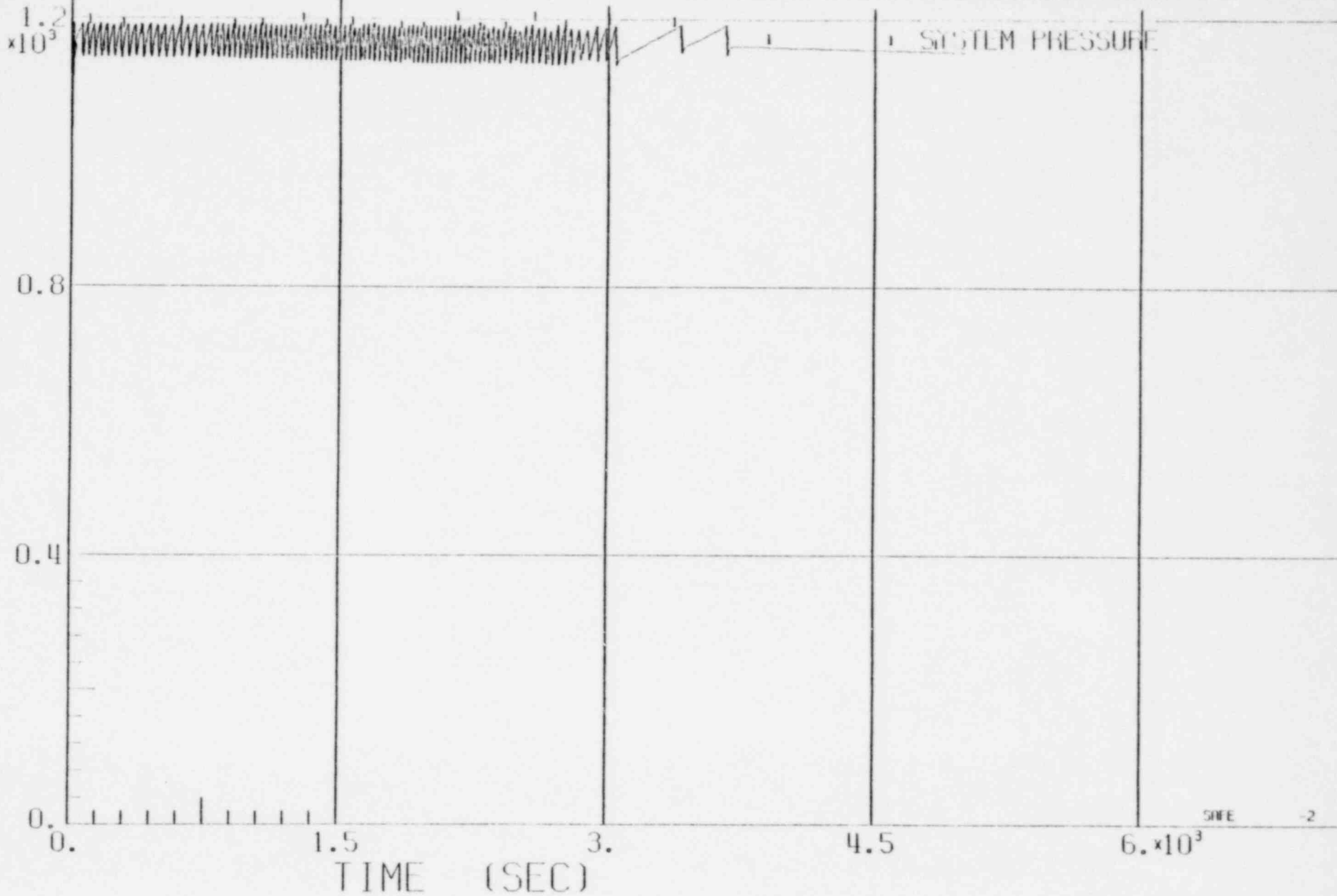


1549 215
QUALITY

BWR/6-218

FIGURE 3.5.2.1-27.1

SYSTEM PRESSURE VS TIME FOR AN ISOLATION WITH NO ADS,
LOW PRESSURE SYSTEMS ONLY, RECIRCULATION PUMPS ON



PRESSURE (PSIA)

1.2×10^3

0.8

0.4

0.

TIME (SEC)

SYSTEM PRESSURE

1549 216

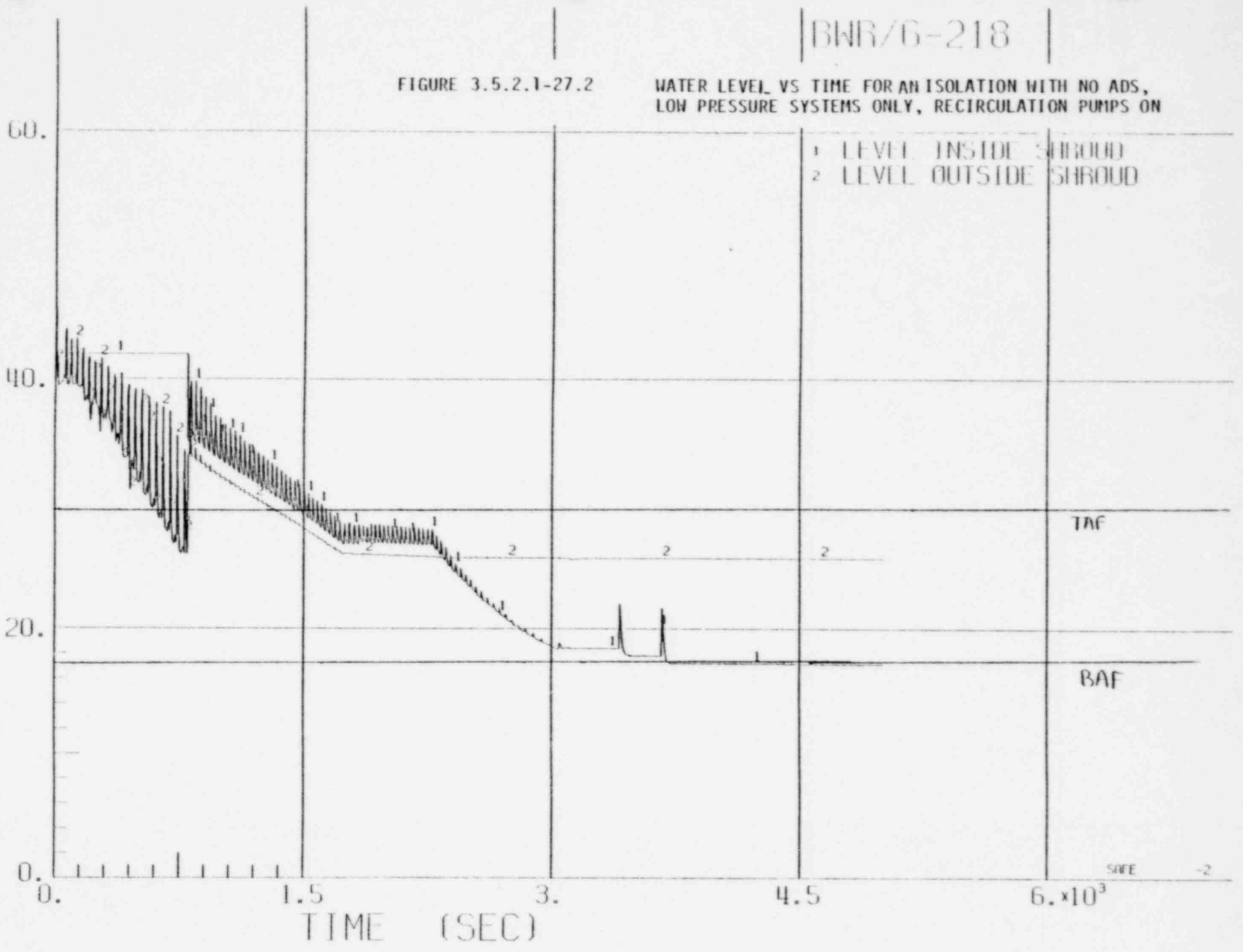
BWR/6-218

FIGURE 3.5.2.1-27.2

WATER LEVEL VS TIME FOR AN ISOLATION WITH NO ADS,
LOW PRESSURE SYSTEMS ONLY, RECIRCULATION PUMPS ON

- 1 LEVEL INSIDE SHROUD
- 2 LEVEL OUTSIDE SHROUD

(FT) WATER LEVEL

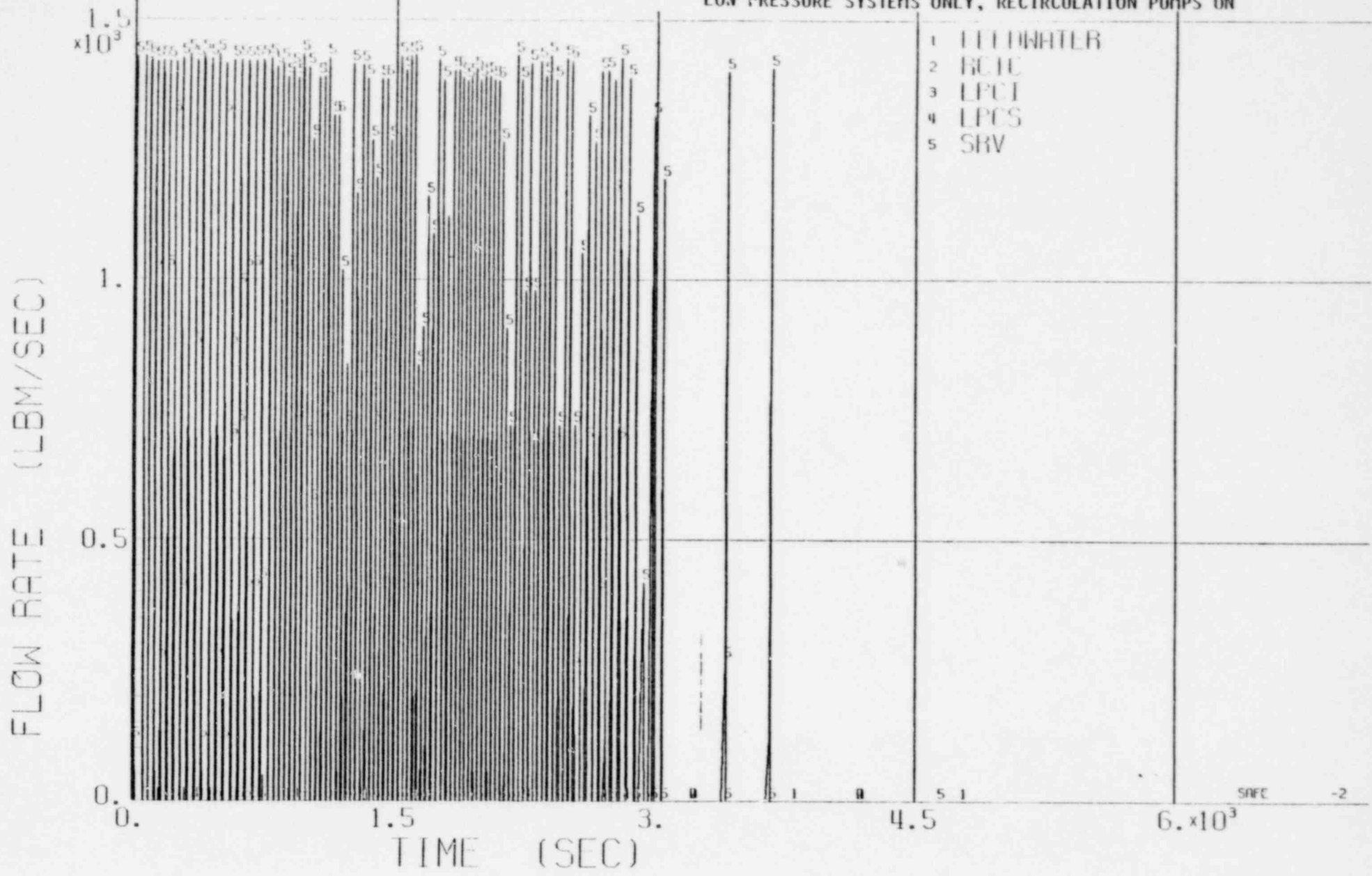


1549 217

BWR/6-218

FIGURE 3.5.2.1-27.3

SYSTEM FLOW RATES VS TIME FOR AN ISOLATION WITH NO ADS,
LOW PRESSURE SYSTEMS ONLY, RECIRCULATION PUMPS ON

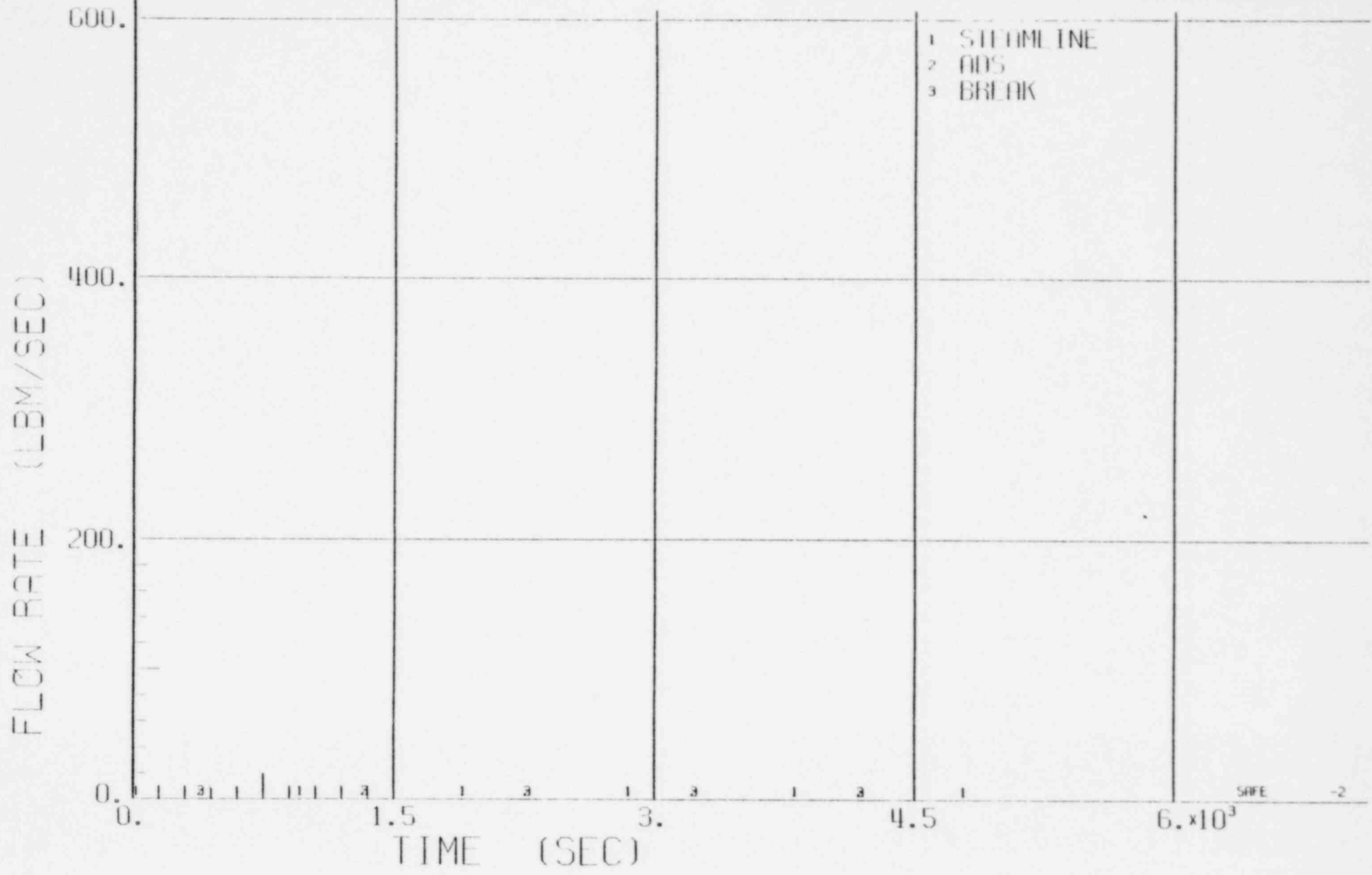


1549 218

BWB/6-218

FIGURE 3.5.2.1-27.4

FLOW RATES VS TIME FOR AN ISOLATION WITH NO ADS,
LOW PRESSURE SYSTEMS ONLY, RECIRCULATION PUMPS ON



1549 219

BWR/6-218

FIGURE 3.5.2.1-27.5

NATURAL CIRCULATION FLOW RATE VS TIME FOR AN ISOLATION WITH NO ADS, LOW PRESSURE SYSTEMS ONLY, RECIRCULATION PUMPS ON

NAT CIRC THRU JET PUMP

1549 220
FLOW RATE (LBM/SEC)
M071

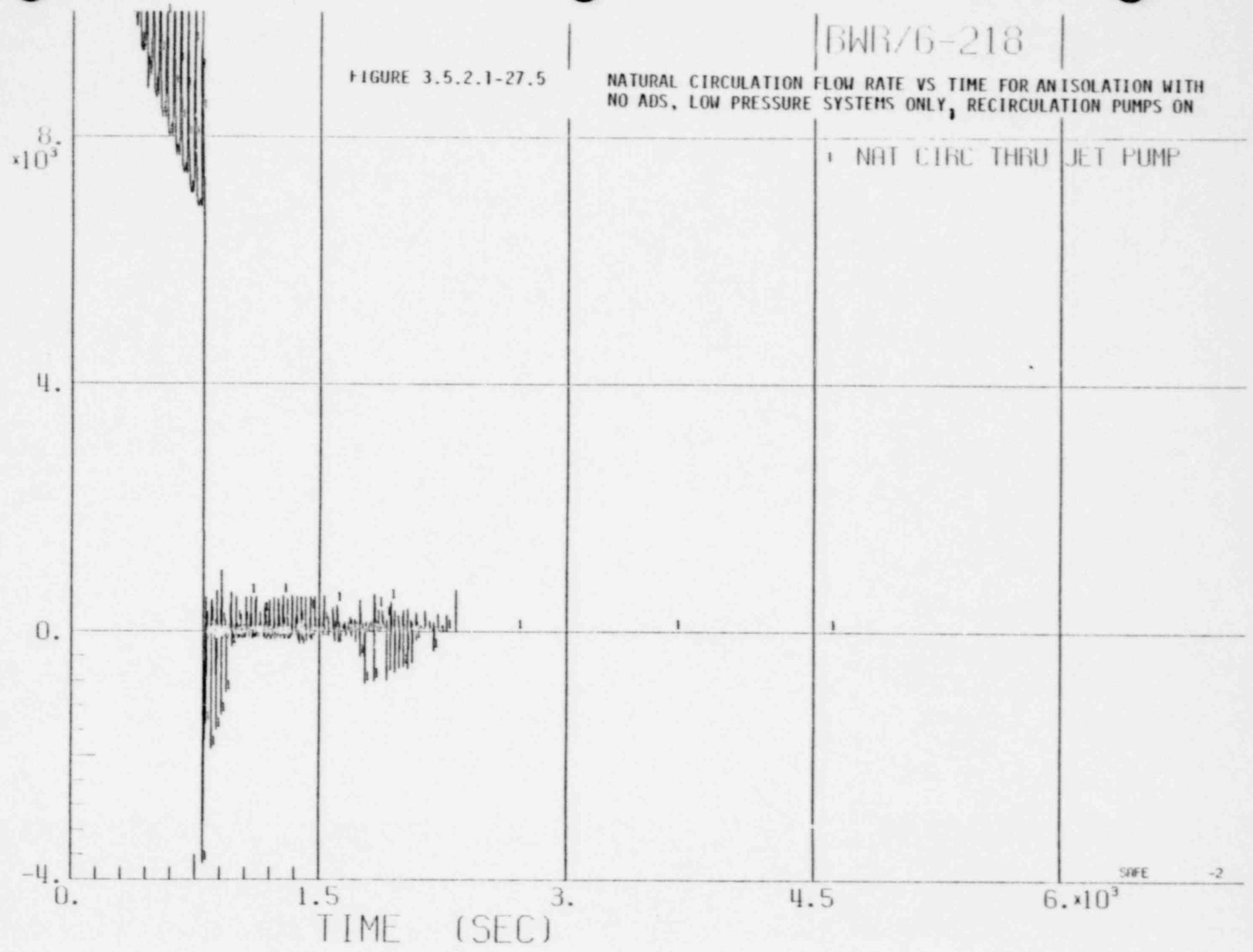
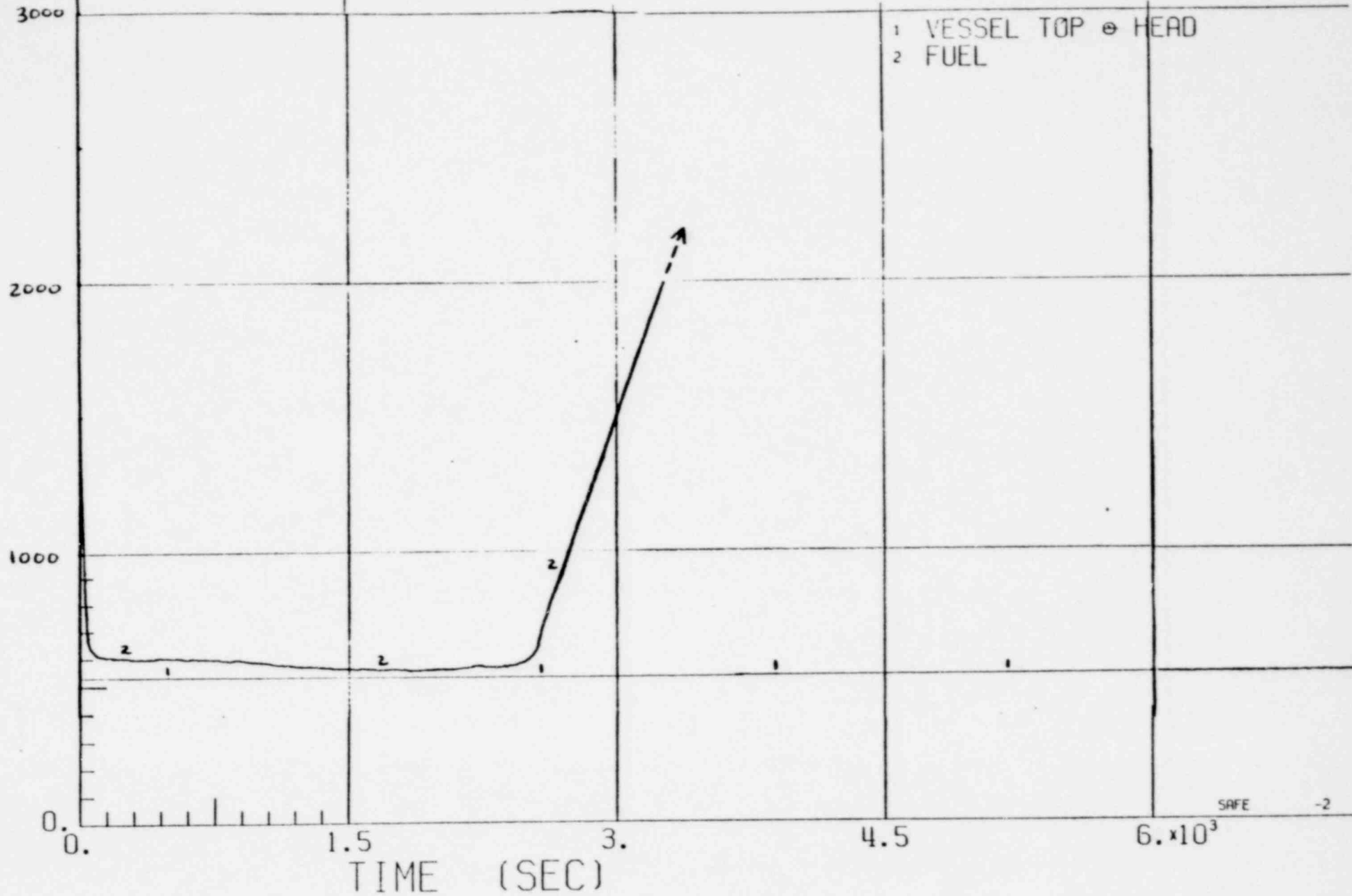


FIGURE 3.5.2.1-27.6

TEMPERATURE VS TIME FOR AN ISOLATION WITH NO ADS,
LOW PRESSURE SYSTEMS ONLY, RECIRCULATION PUMPS ON

TEMPERATURE (DEG F)

- 1 VESSEL TOP @ HEAD
- 2 FUEL

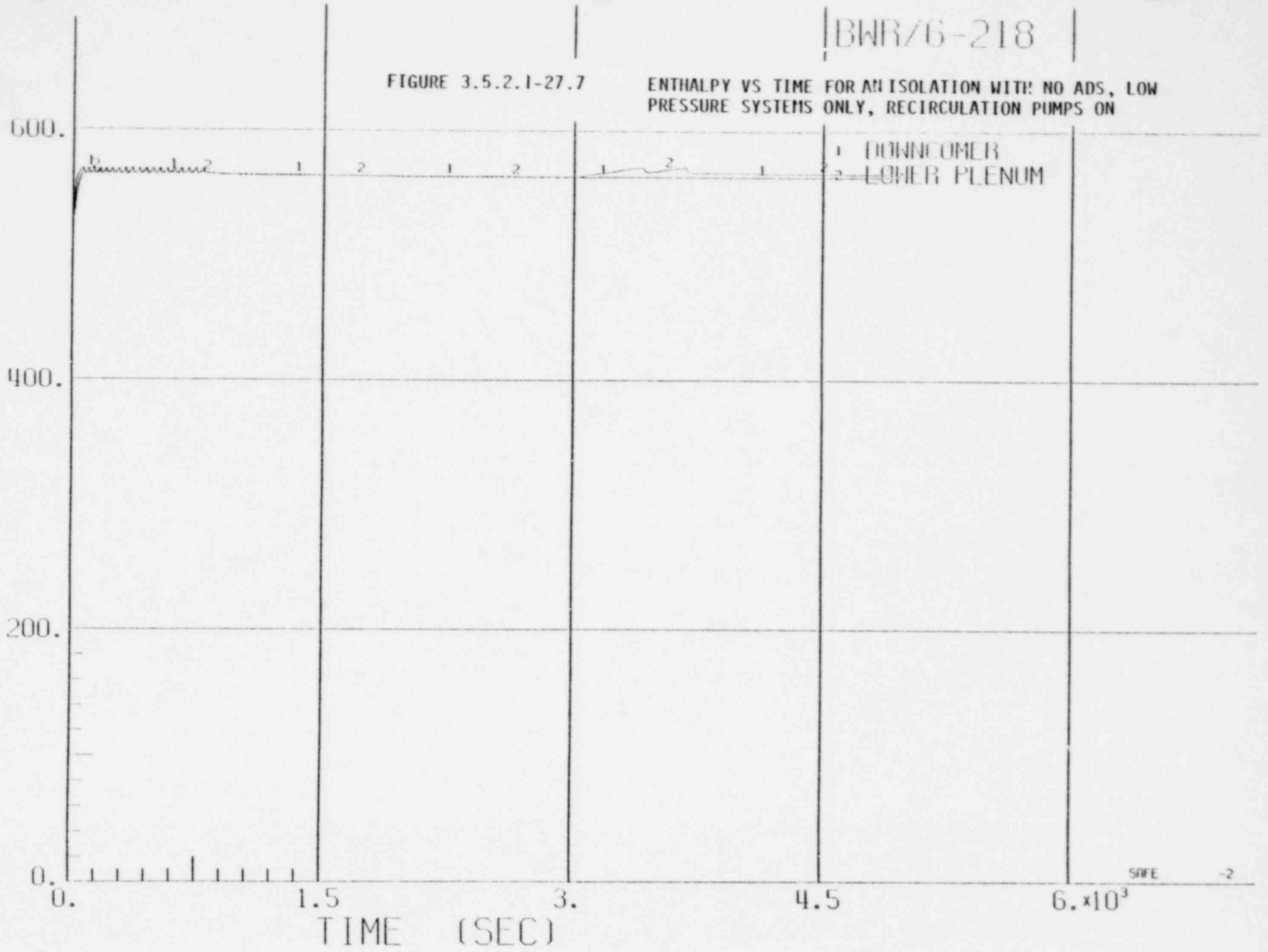


1549 221

BWR/6-218

FIGURE 3.5.2.1-27.7

ENTHALPY VS TIME FOR AN ISOLATION WITH NO ADS, LOW PRESSURE SYSTEMS ONLY, RECIRCULATION PUMPS ON

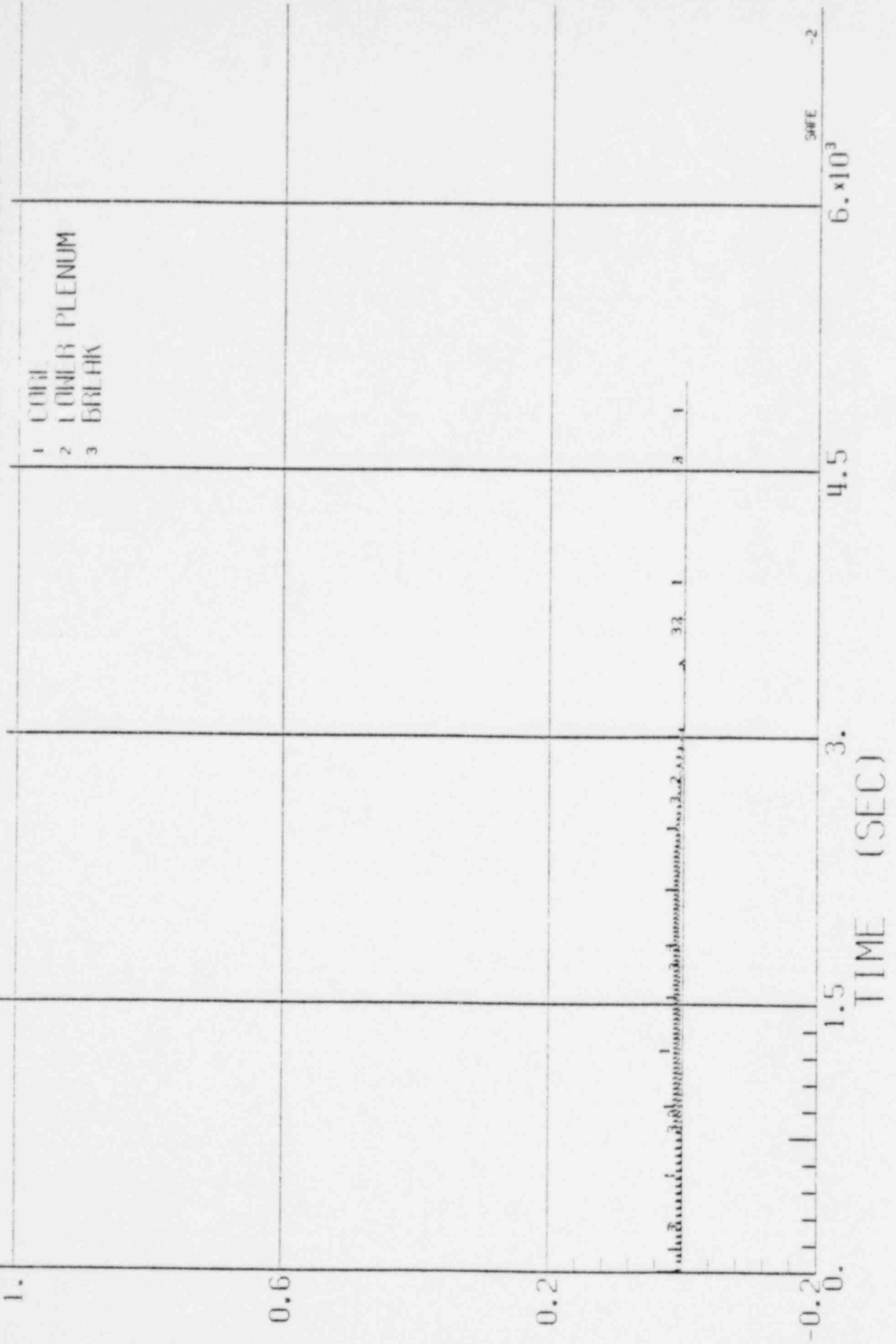


1549 222
ENTHALPY (BTU/LBM)
TIME (SEC)

BWR/6-218

FIGURE 3.5.2.1-27.8

QUALITY VS TIME FOR AN ISOLATION WITH NO ADS, LOW PRESSURE SYSTEMS ONLY, RECIRCULATION PUMPS ON



QUALITY

SAFE -2

PRESSURE (PSIA)

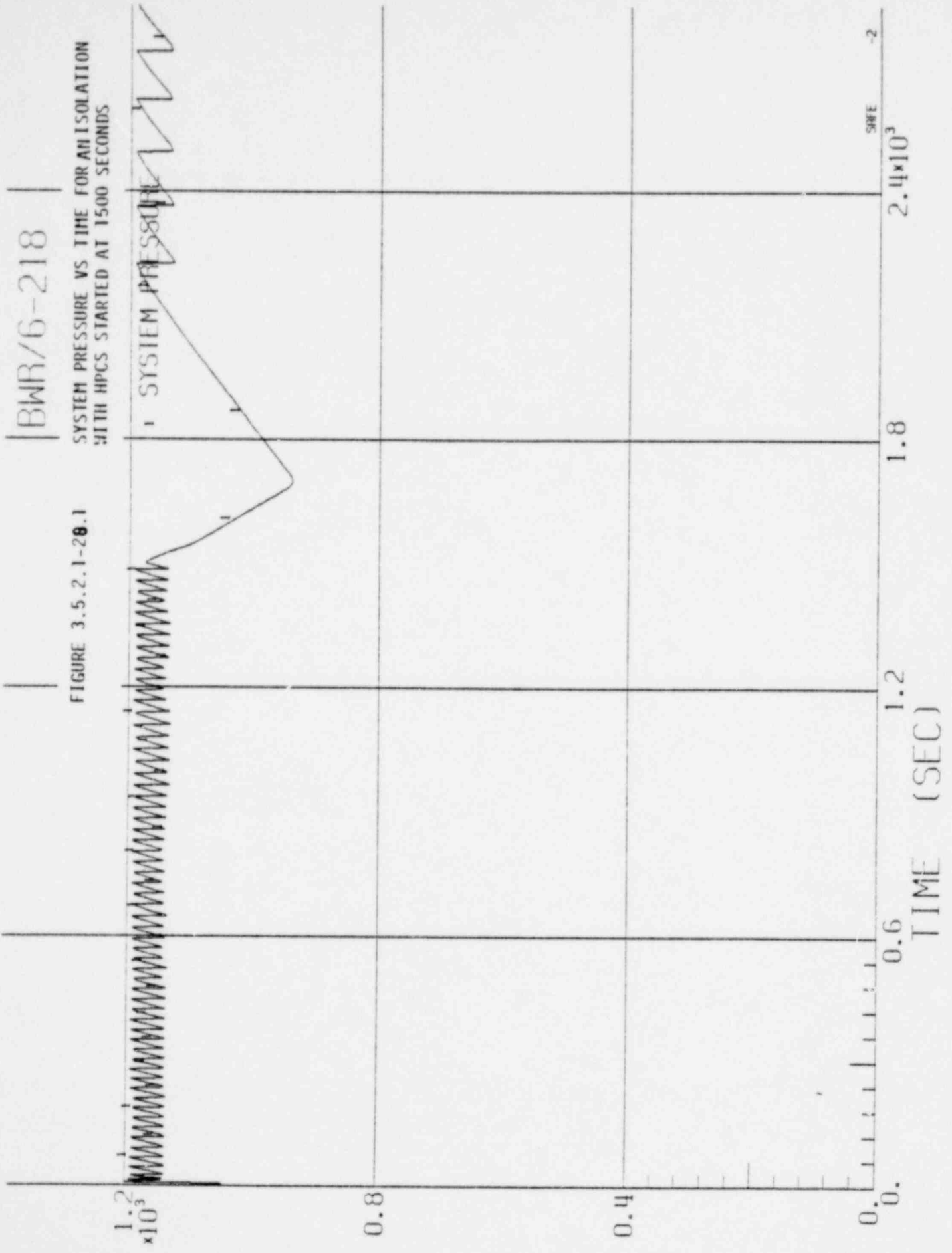


FIGURE 3.5.2.1-28.1

SYSTEM PRESSURE VS TIME FOR AN ISOLATION WITH HPCS STARTED AT 1500 SECONDS

BWR/6-218

SYSTEM PRESSURE

SHFE -2

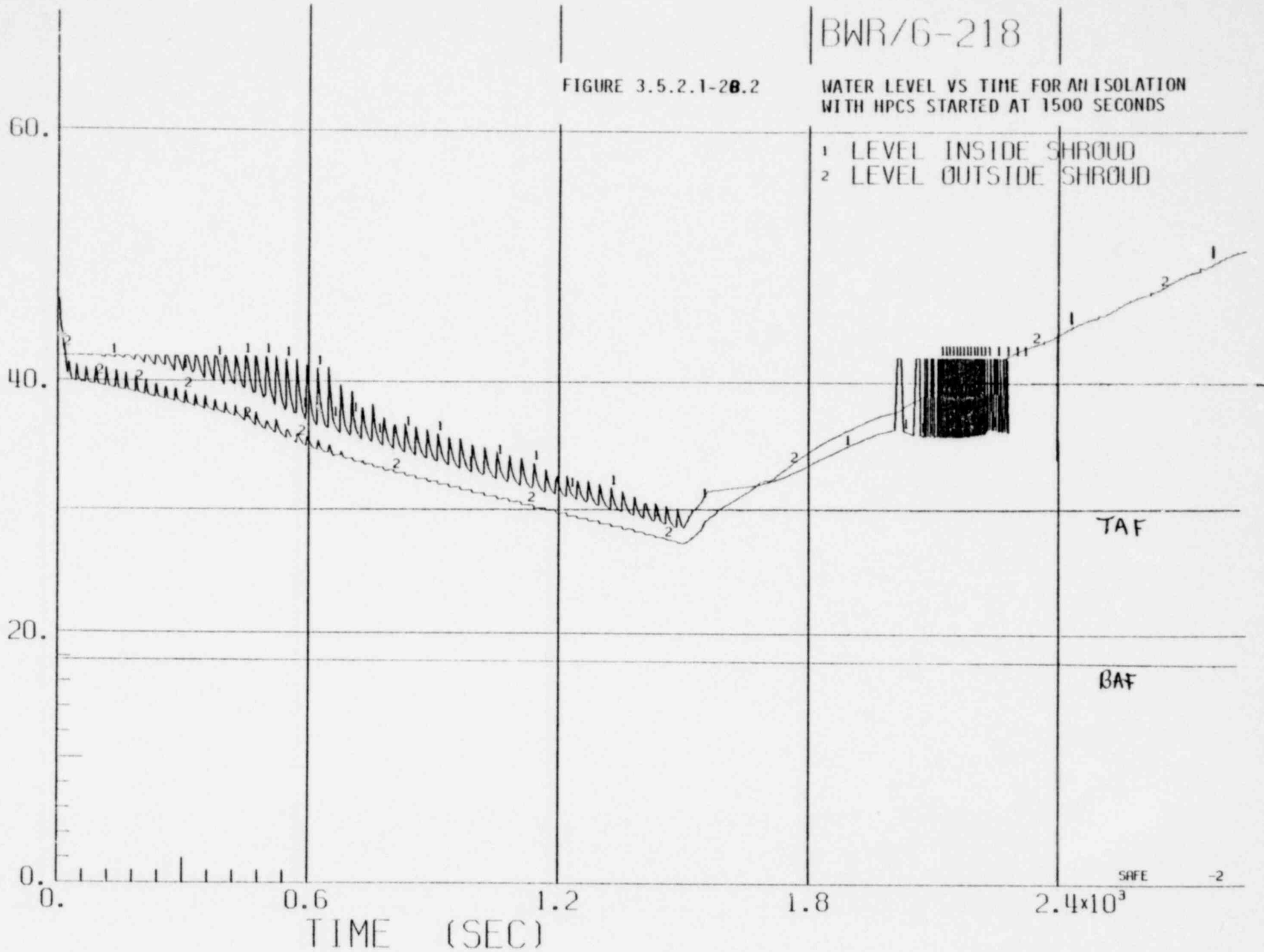
BWR/G-218

FIGURE 3.5.2.1-20.2

WATER LEVEL VS TIME FOR AN ISOLATION
WITH HPCS STARTED AT 1500 SECONDS

- 1 LEVEL INSIDE SHROUD
- 2 LEVEL OUTSIDE SHROUD

WATER LEVEL (FT)

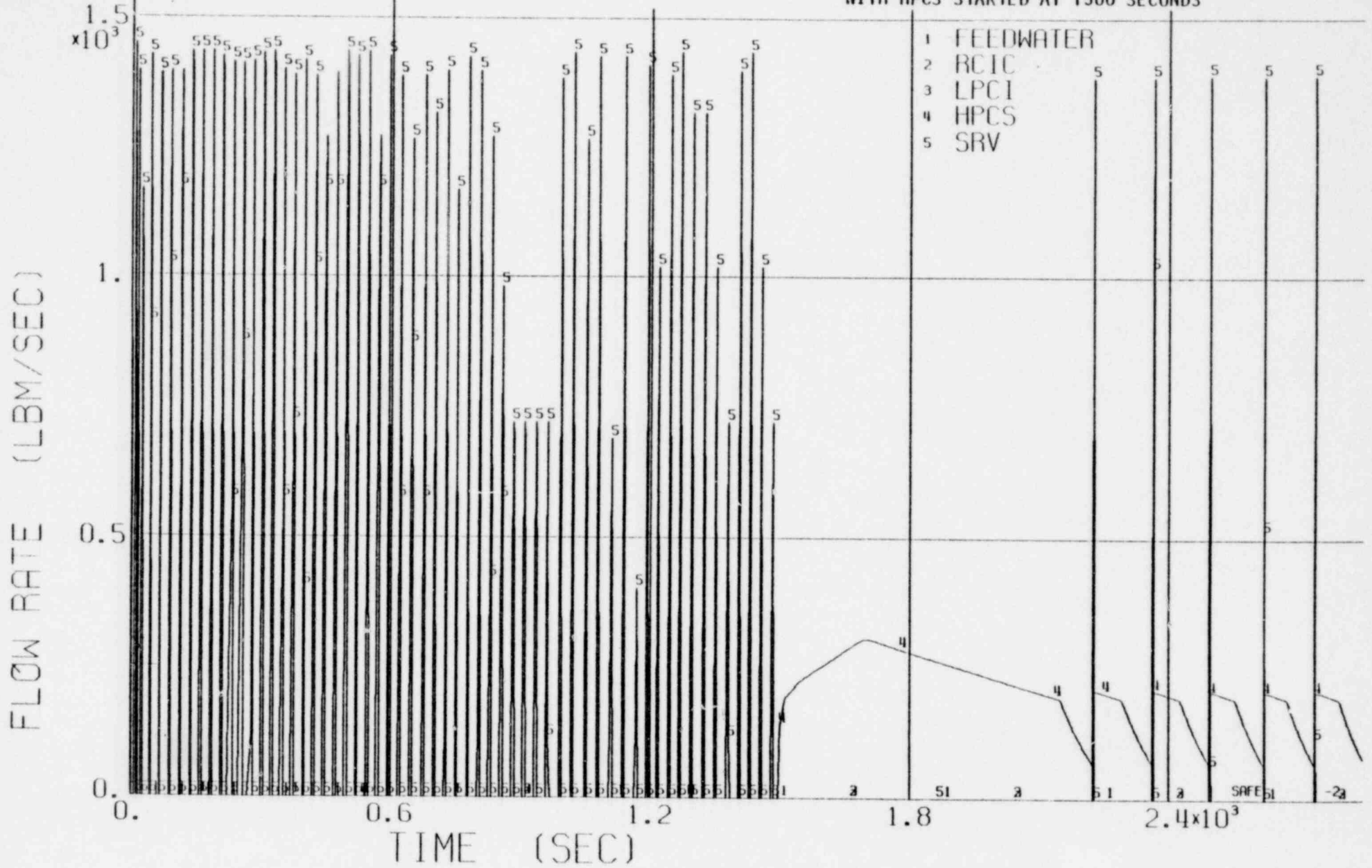


1549 225

BWR/6-218

FIGURE 3.5.2.1-20.3

SYSTEM FLOW RATES VS TIME FOR AN ISOLATION WITH HPCS STARTED AT 1500 SECONDS



FLOW RATE (LBM/SEC) $\times 10^3$

1549 226

SAFE

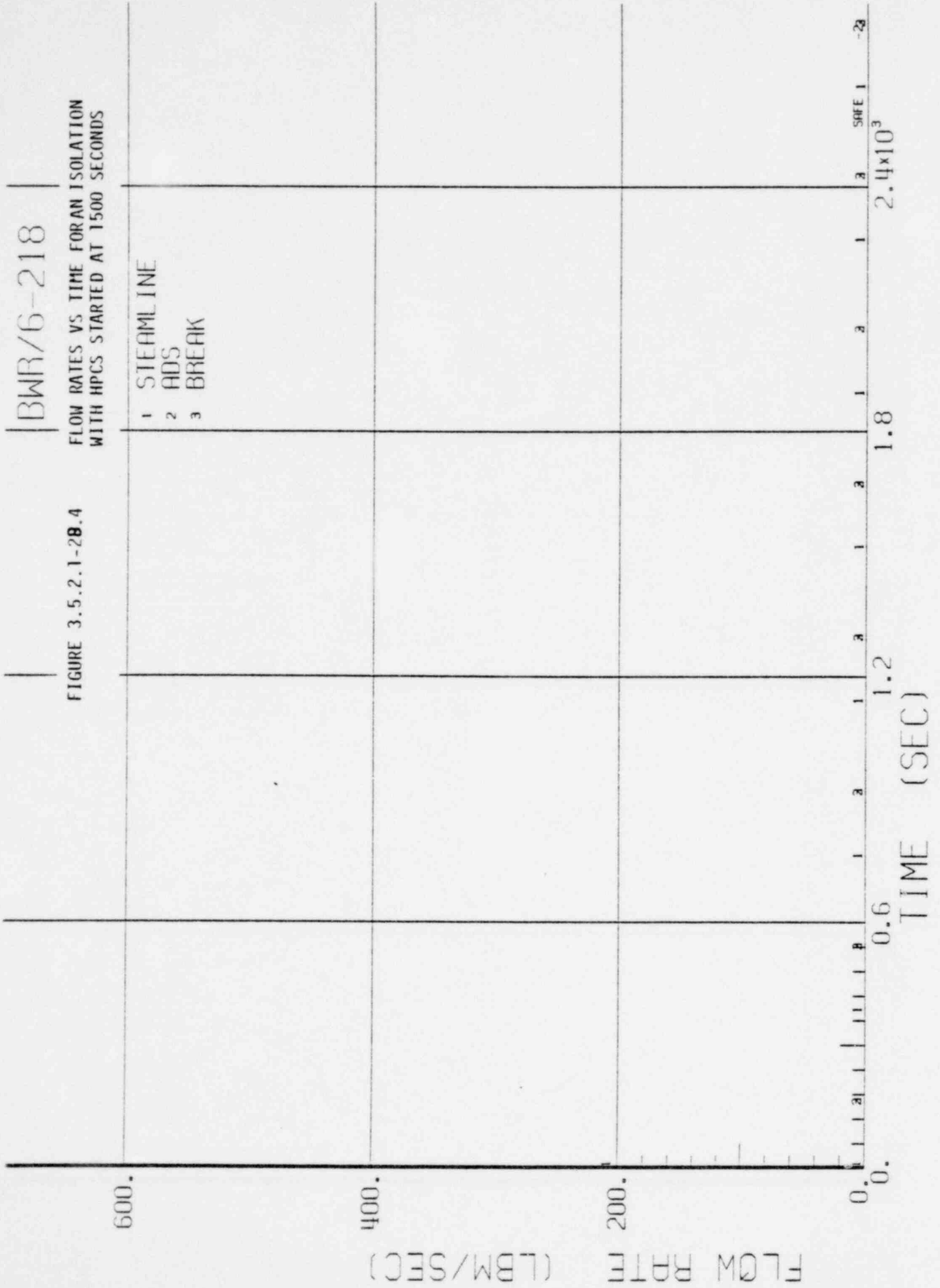
-2a

BWR/6-218

FLOW RATES VS TIME FOR AN ISOLATION WITH HPCS STARTED AT 1500 SECONDS

FIGURE 3.5.2.1-2B.4

- 1 STEAML INE
- 2 ADS
- 3 BREAK



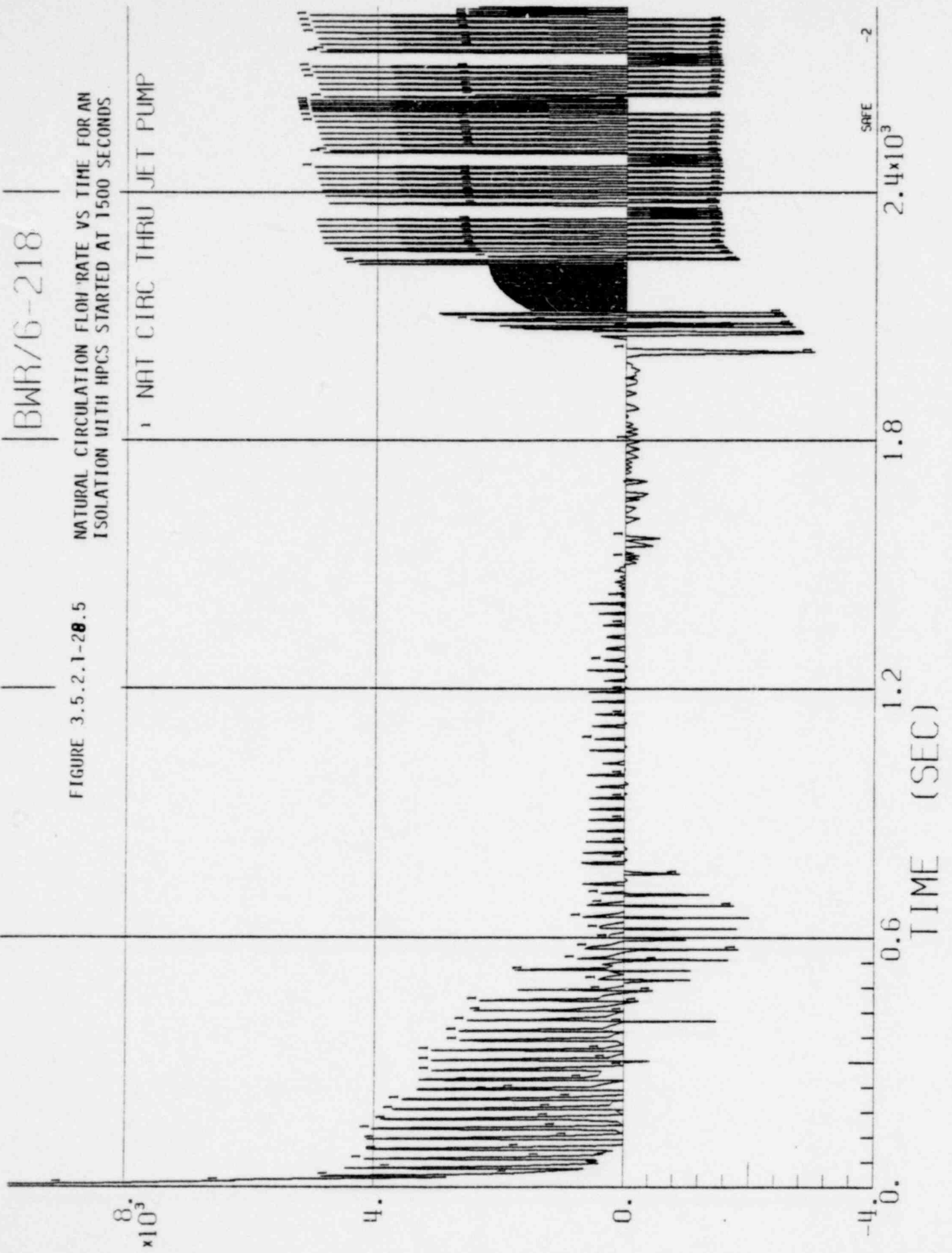
SAFE 1 -2

BWR/6-218

FIGURE 3.5.2.1-28.5

NATURAL CIRCULATION FLOW RATE VS TIME FOR AN ISOLATION WITH HPCS STARTED AT 1500 SECONDS

1 NAT CIRC THRU JET PUMP



SAFE -2

FLOW RATE (LBM/SEC)

1549 228

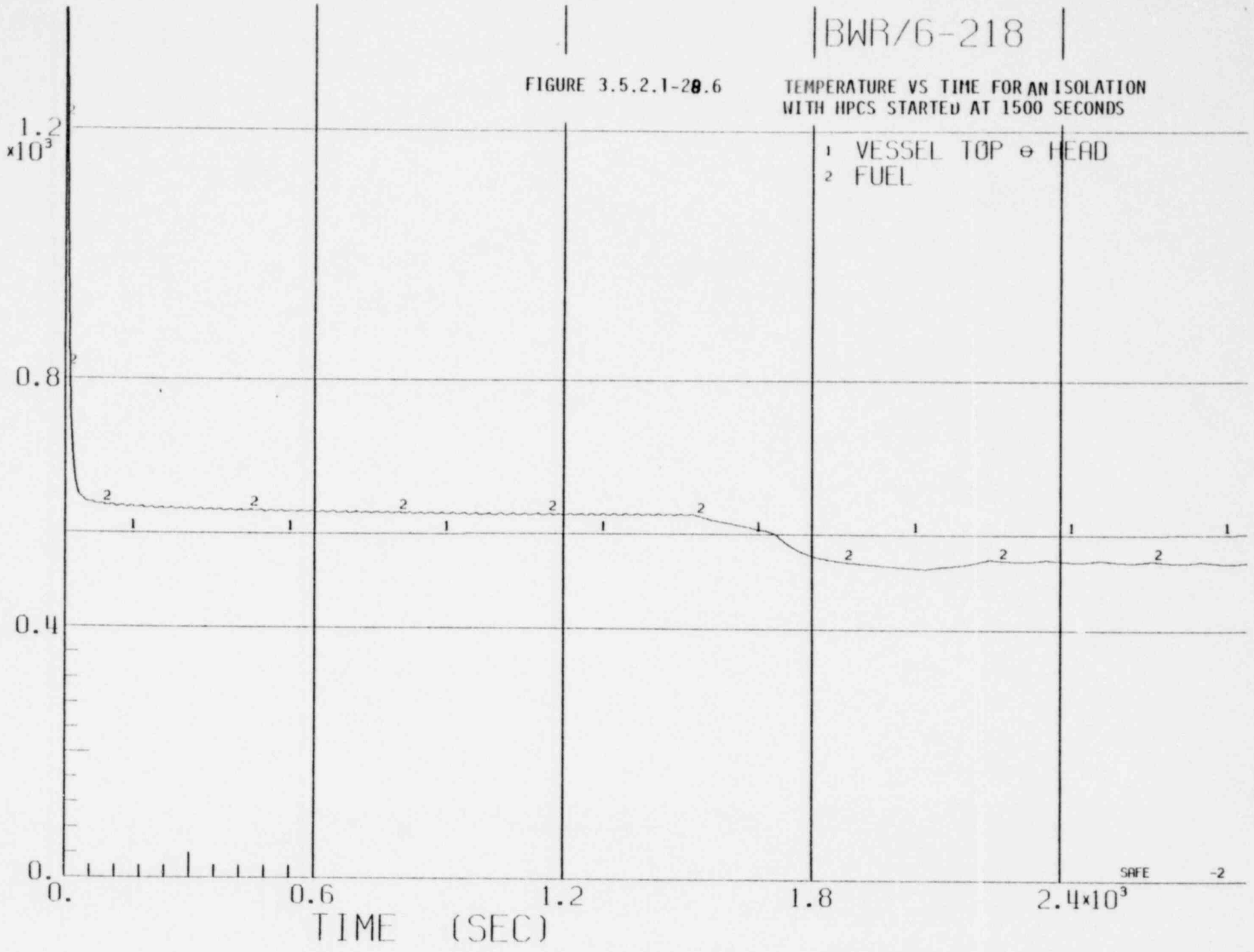
BWR/6-218

FIGURE 3.5.2.1-20.6

TEMPERATURE VS TIME FOR AN ISOLATION
WITH HPCS STARTED AT 1500 SECONDS

1 VESSEL TOP & HEAD
2 FUEL

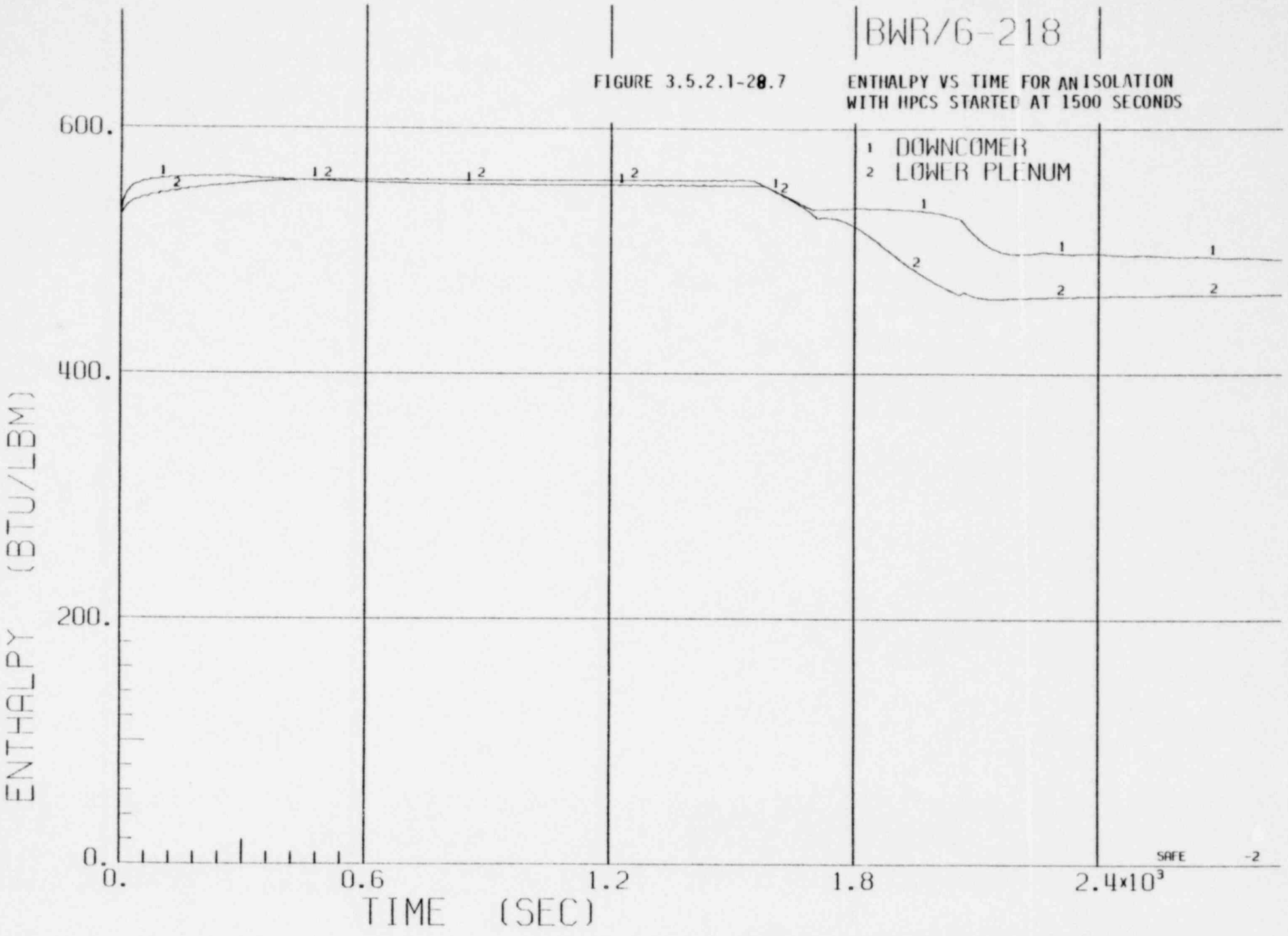
TEMPERATURE (DEG F)
1549 229



BWR/6-218

FIGURE 3.5.2.1-20.7

ENTHALPY VS TIME FOR AN ISOLATION WITH HPCS STARTED AT 1500 SECONDS



ENTHALPY (BTU/LBM)

TIME (SEC)

1 DOWNCOMER
2 LOWER PLENUM

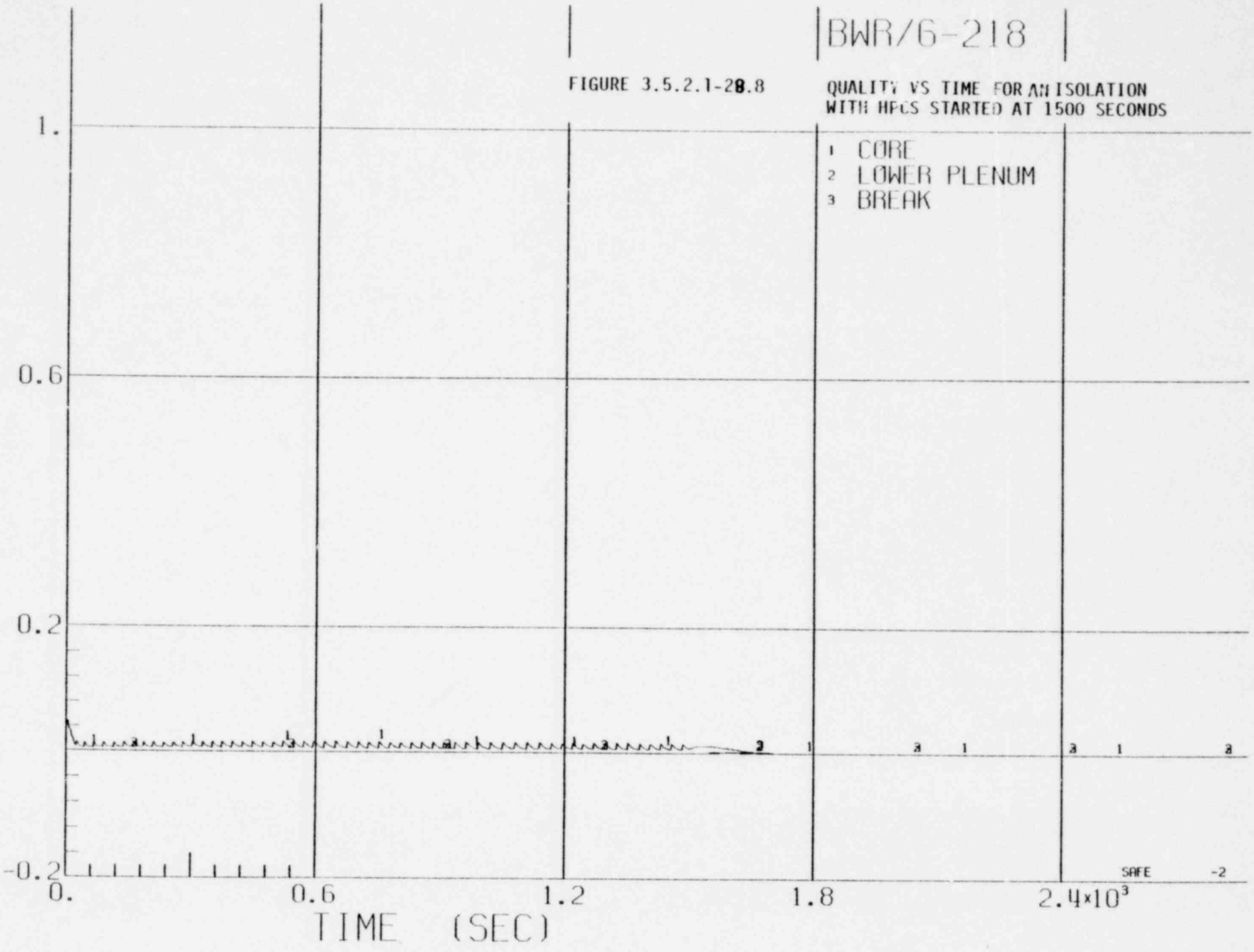
1549 230

BWR/6-218

FIGURE 3.5.2.1-28.8

QUALITY VS TIME FOR AN ISOLATION
WITH HFCS STARTED AT 1500 SECONDS

- 1 CORE
- 2 LOWER PLENUM
- 3 BREAK

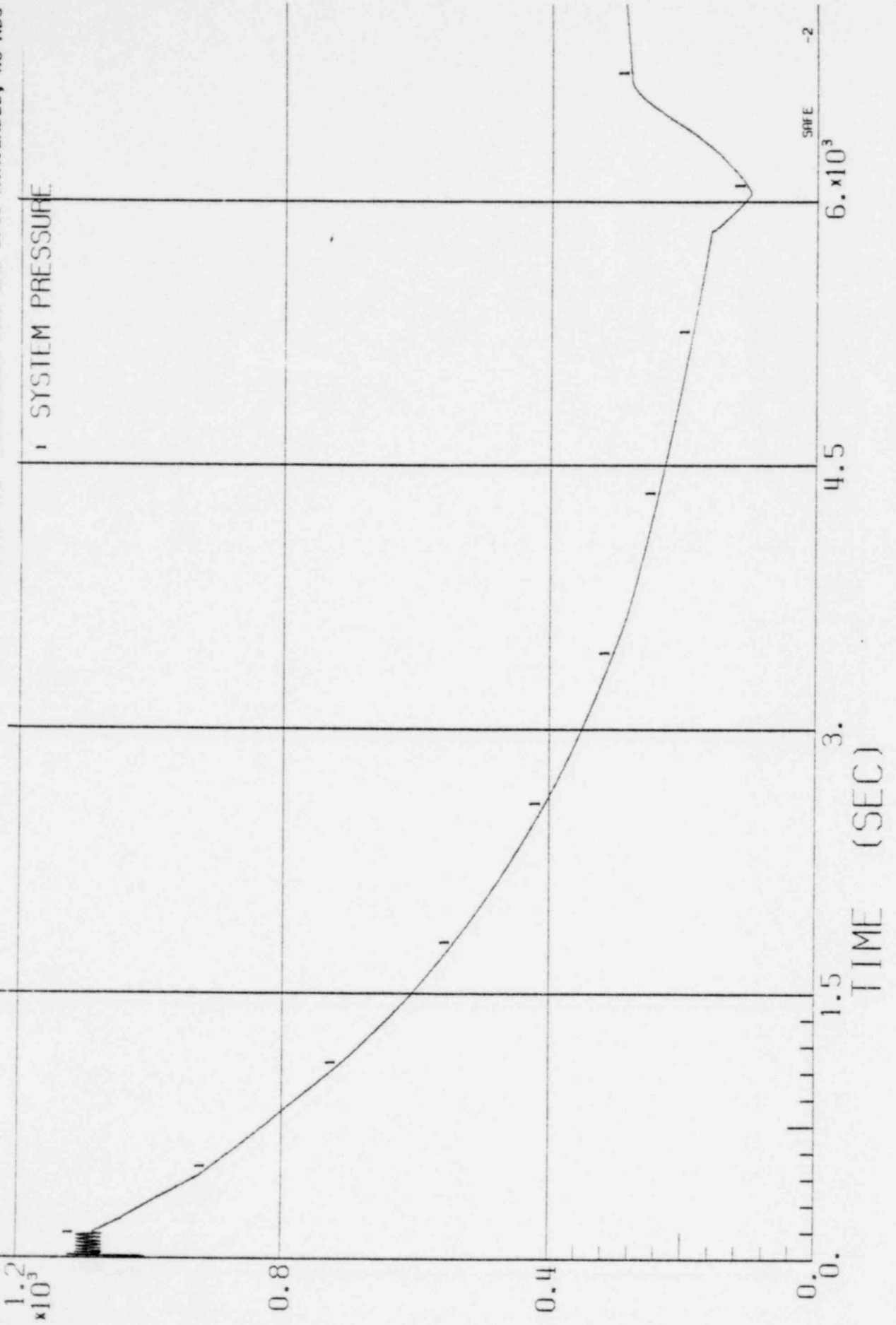


1549 231
QUALITY

BWR/2

FIGURE 3.5.2.1-39.1

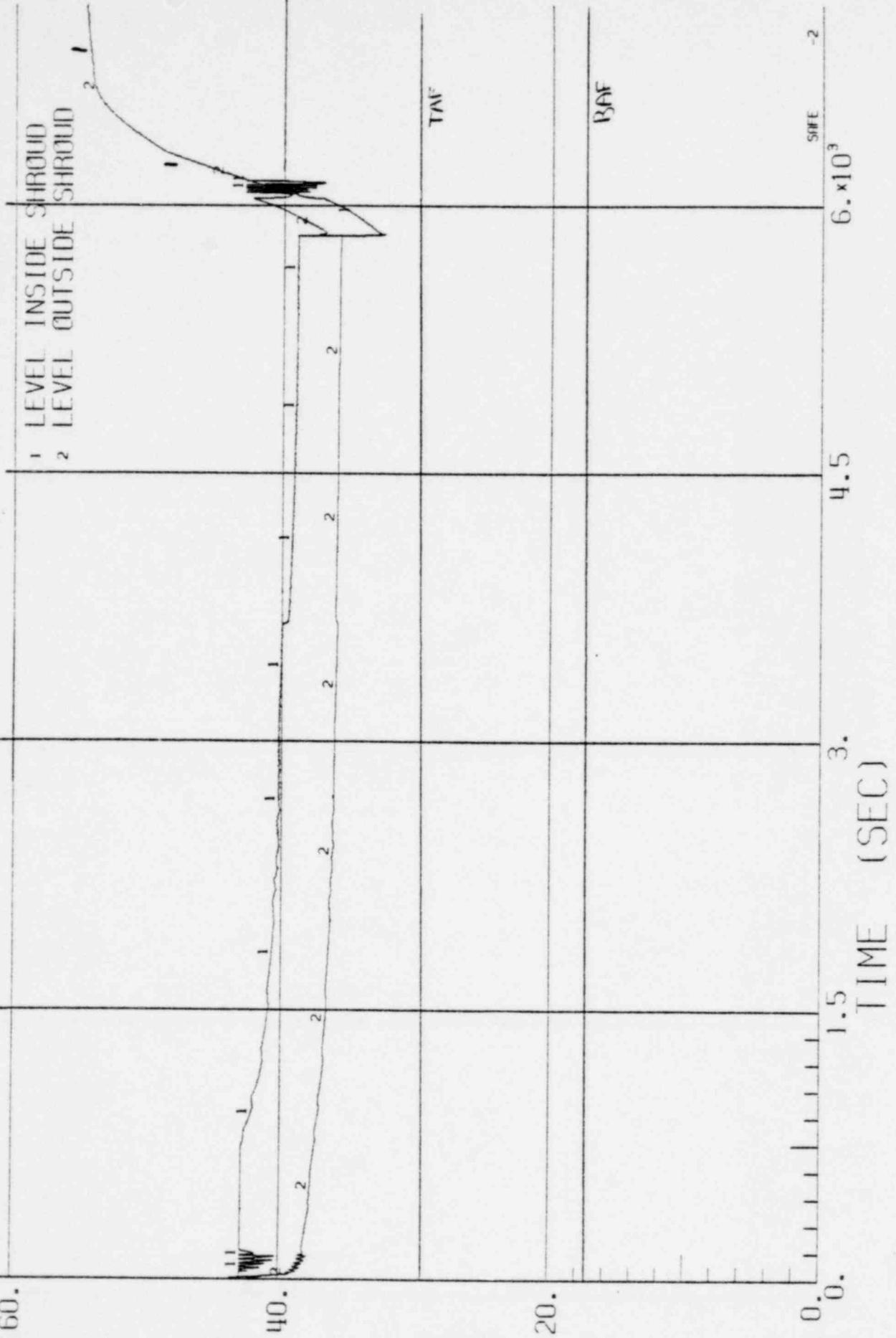
SYSTEM PRESSURE VS TIME FOR AN ISOLATION WITH ISOLATION CONDENSERS AND ONE LPCS AVAILABLE, NO ADS



1549 232
PRESSURE (PSIA)

BWR/2

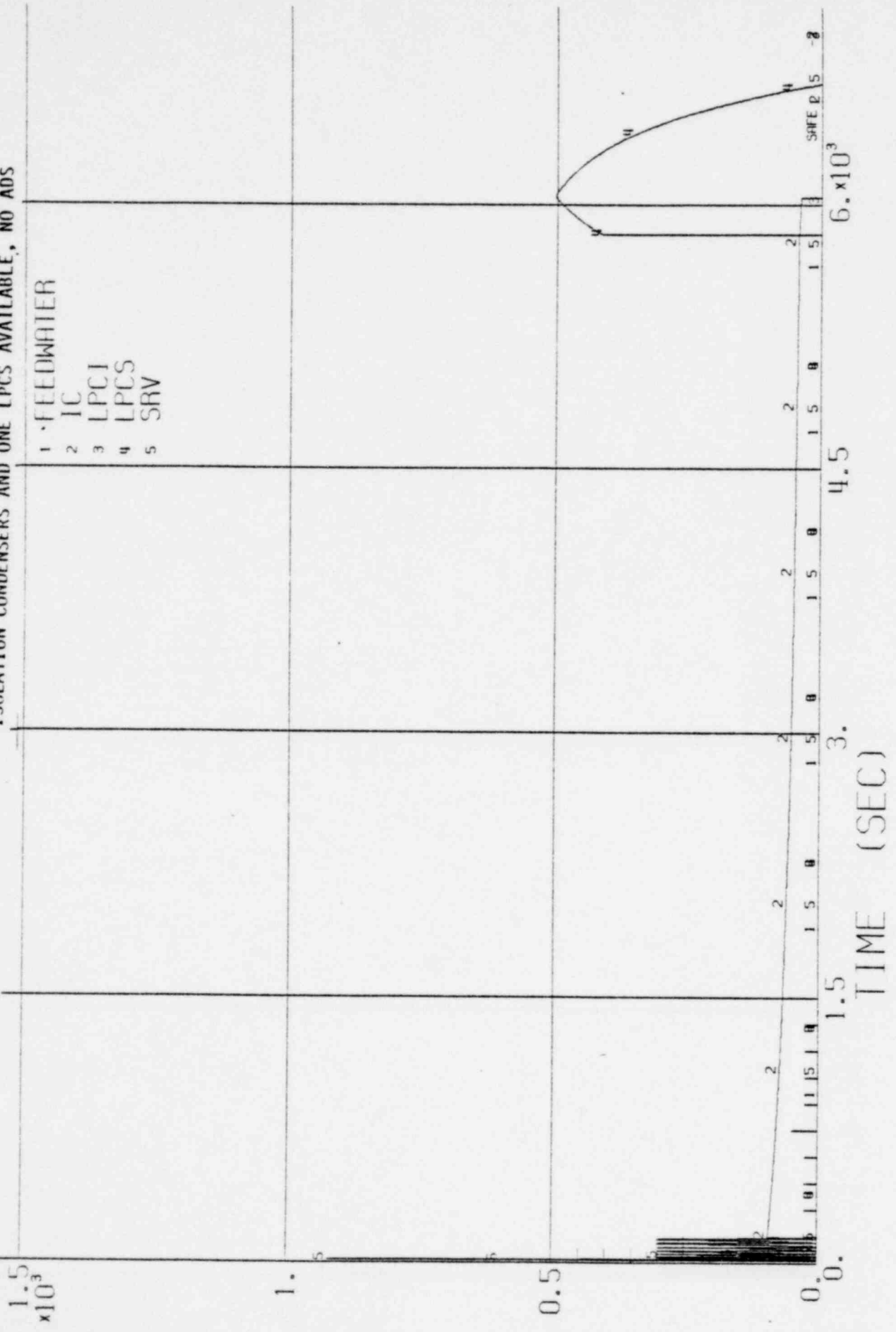
FIGURE 3.5.2.1-21.2 WATER LEVEL VS TIME FOR AH ISOLATION WITH ISOLATION CONDENSERS AND ONE LPCS AVAILABLE, NO ADS



BWR/2

FIGURE 3.5.2.1-29.3

SYSTEM FLOW RATES VS TIME FOR AMISOLATION WITH ISOLATION CONDENSERS AND ONE LPCS AVAILABLE, NO ADS

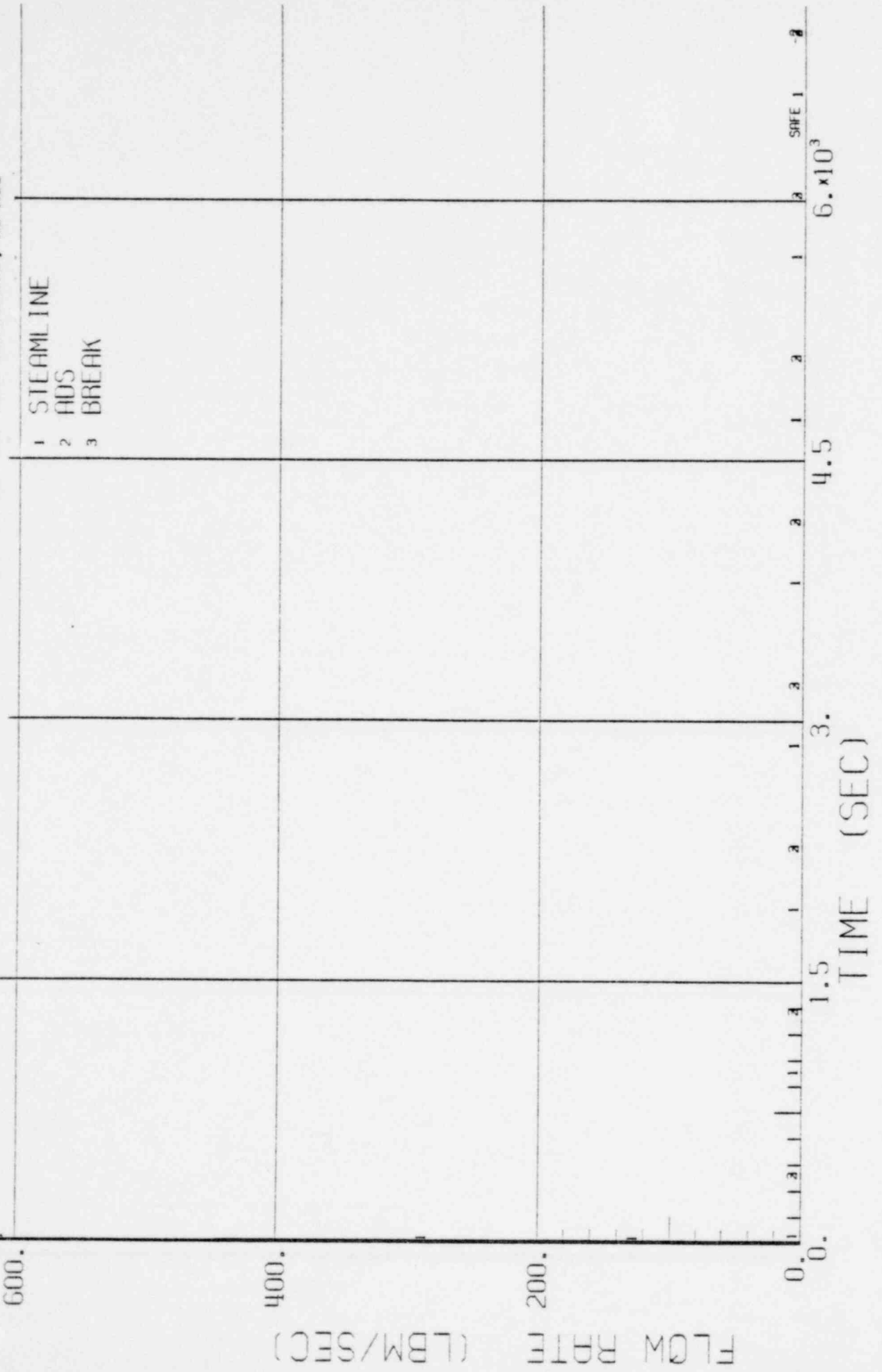


FLOW RATE (LBM/SEC)

TIME (SEC)

BWR/2

FIGURE 3.5.2.1-29.4 . FLOW RATES VS TIME FOR ANTISOLATION WITH ISOLATION
CONDENSERS AND ONE LPCS AVAILABLE, NO ADS



BWR/2

FIGURE 3.5.2.1-21.5

NATURAL CIRCULATION FLOW RATE VS TIME FOR A ISOLATION WITH ISOLATION CONDENSERS AND ONE LPCS AVAILABLE, NO ADS

NATURAL CIRCULATION

8×10^3

FLOW RATE (LBM/SEC)

1549 236

-4.0

1.5

3.0

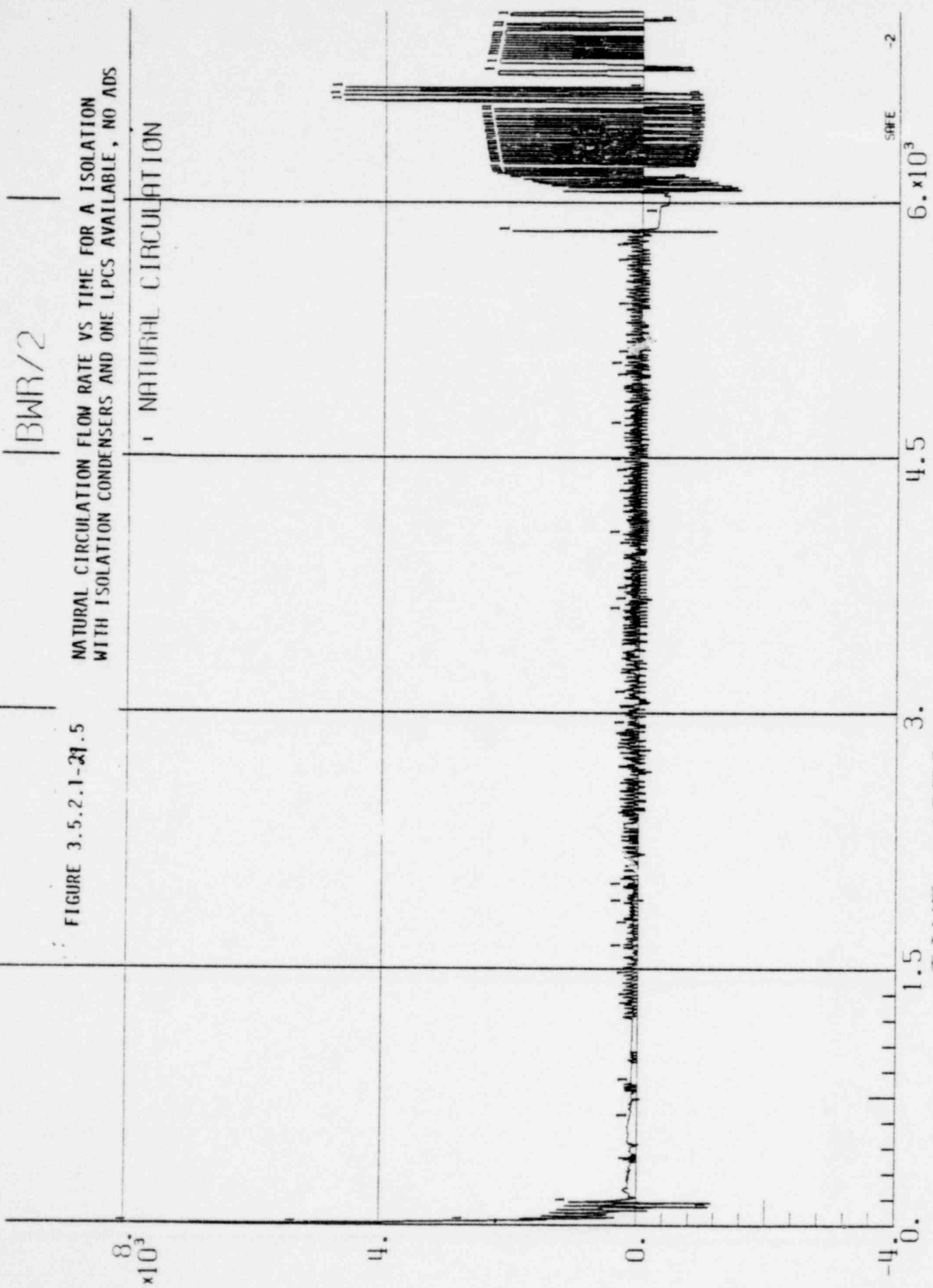
4.5

6×10^3

SAFE

-2

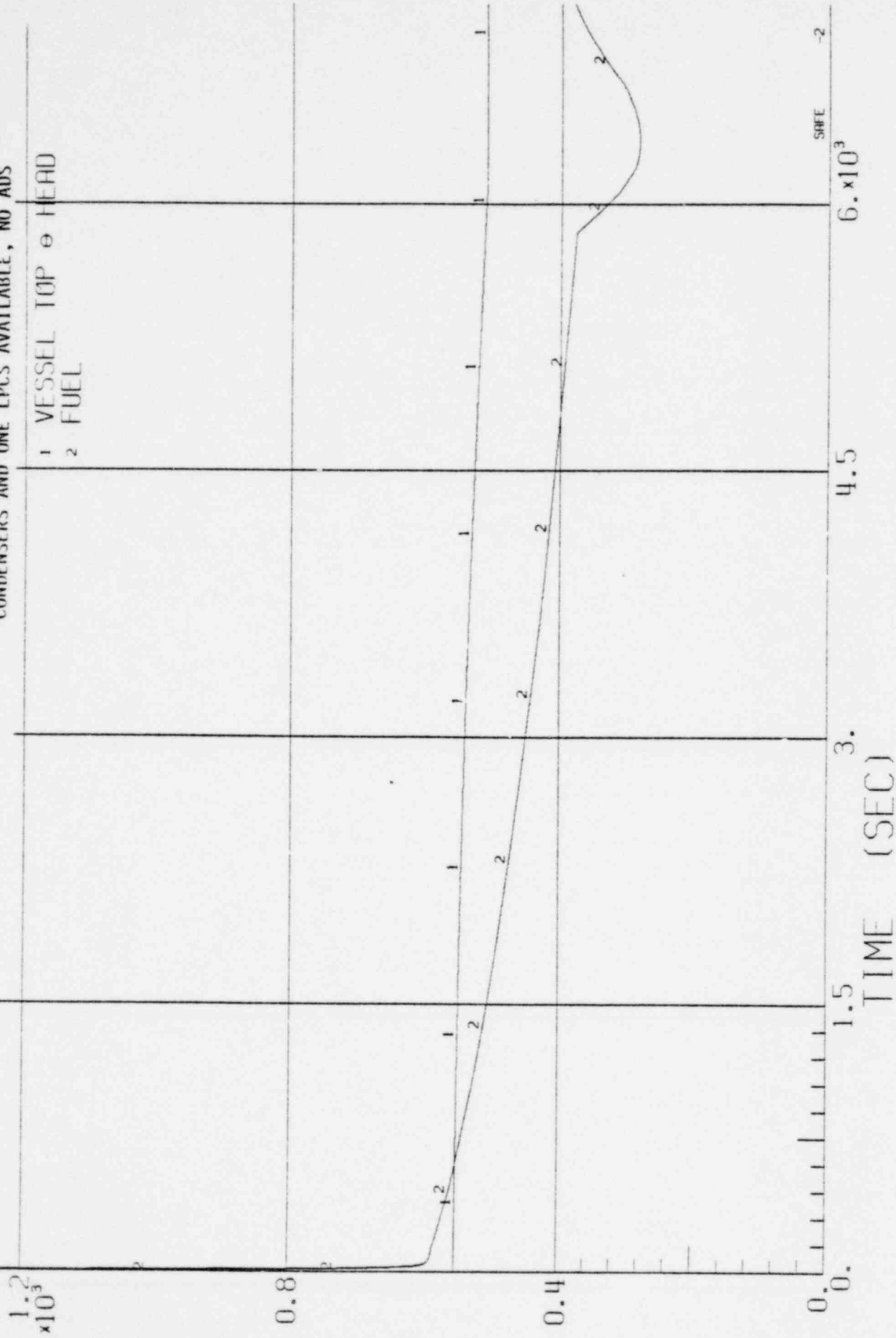
TIME (SEC)



BWR/2

FIGURE 3.5.2.1-*R*.5
TEMPERATURE VS TIME FOR A ISOLATION WITH ISOLATION
CONDENSERS AND ONE LPCS AVAILABLE, NO ADS

1 VESSEL TOP e HEAD
2 FUEL



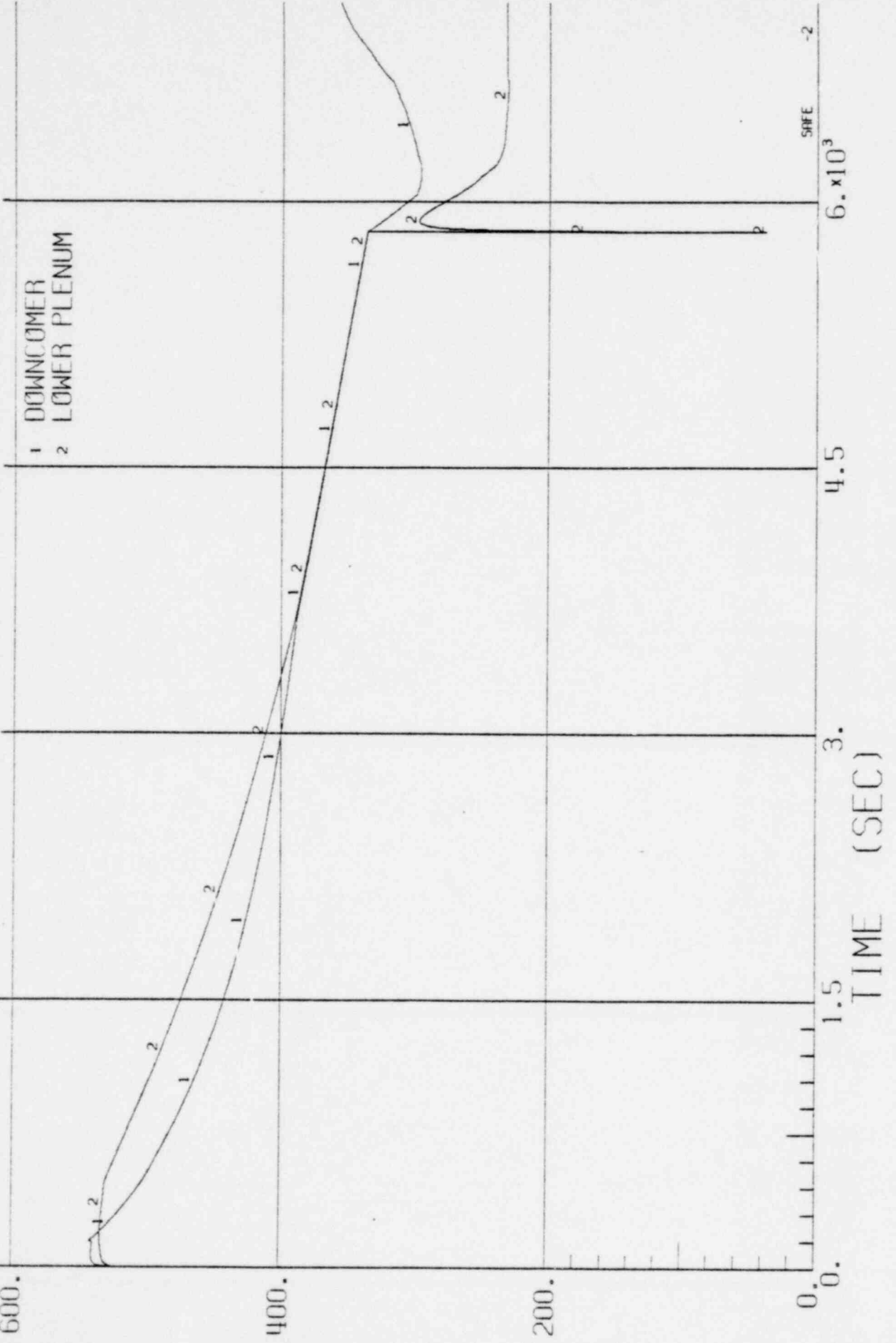
SAFE -2

TEMPERATURE (DEG F)

1549 237

BWR/2

FIGURE 3.5.2.1-31.7 ENTHALPY VS TIME FOR A ISOLATION WITH ISOLATION
CONDENSERS AND ONE LPCS AVAILABLE, NO ADS

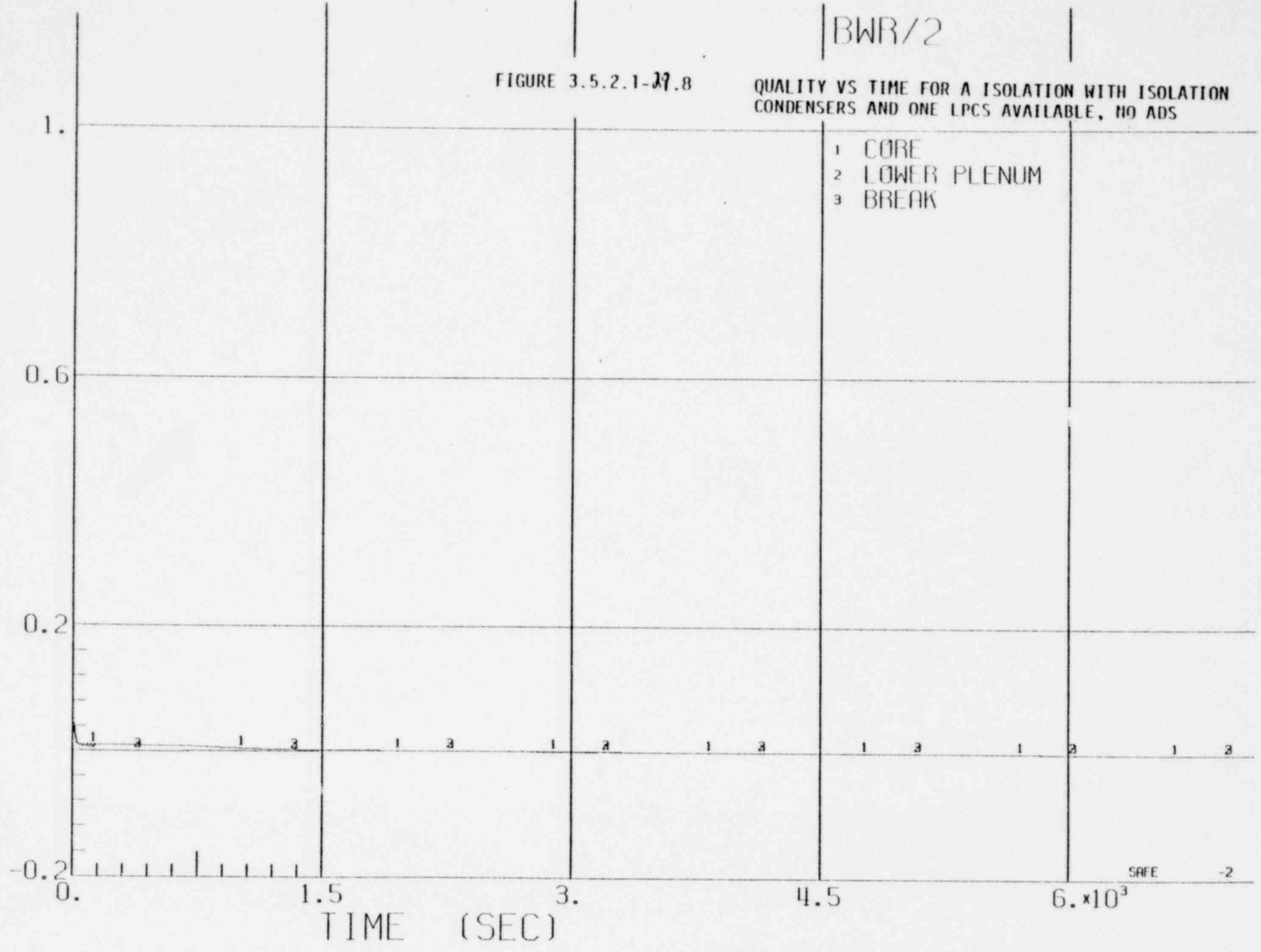


BWR/2

FIGURE 3.5.2.1-27.8

QUALITY VS TIME FOR A ISOLATION WITH ISOLATION
CONDENSERS AND ONE LPCS AVAILABLE, NO ADS

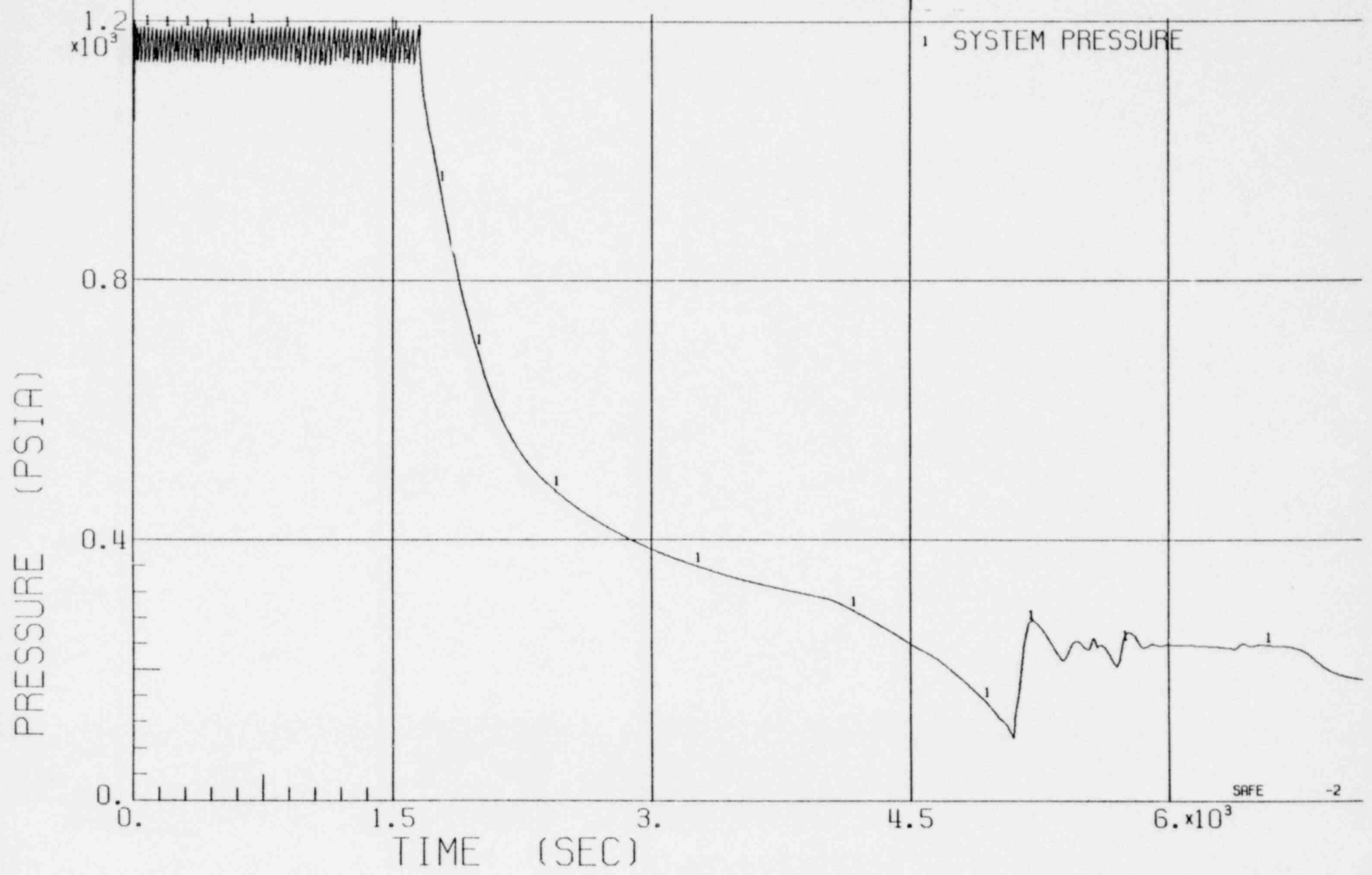
- 1 CORE
- 2 LOWER PLENUM
- 3 BREAK



ALITAND
1549 239

BWR/6-218

FIGURE 3.5.2.1-30.1 SYSTEM PRESSURE VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, ONE RELIEF VALVE OPEN AT 600 SECONDS.



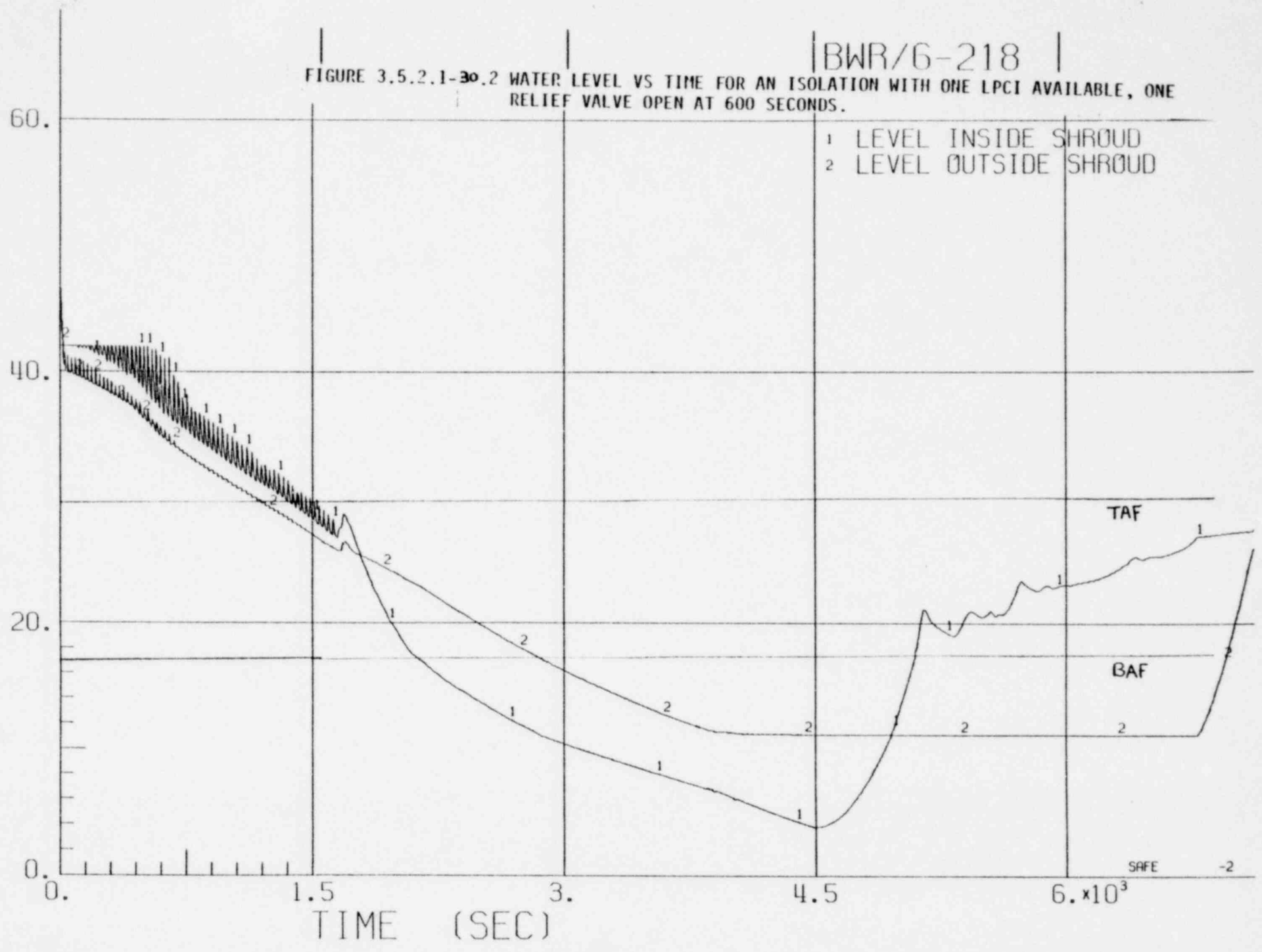
1549 240
PRESSURE (PSIA)

BWR/6-218

FIGURE 3.5.2.1-30.2 WATER LEVEL VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, ONE RELIEF VALVE OPEN AT 600 SECONDS.

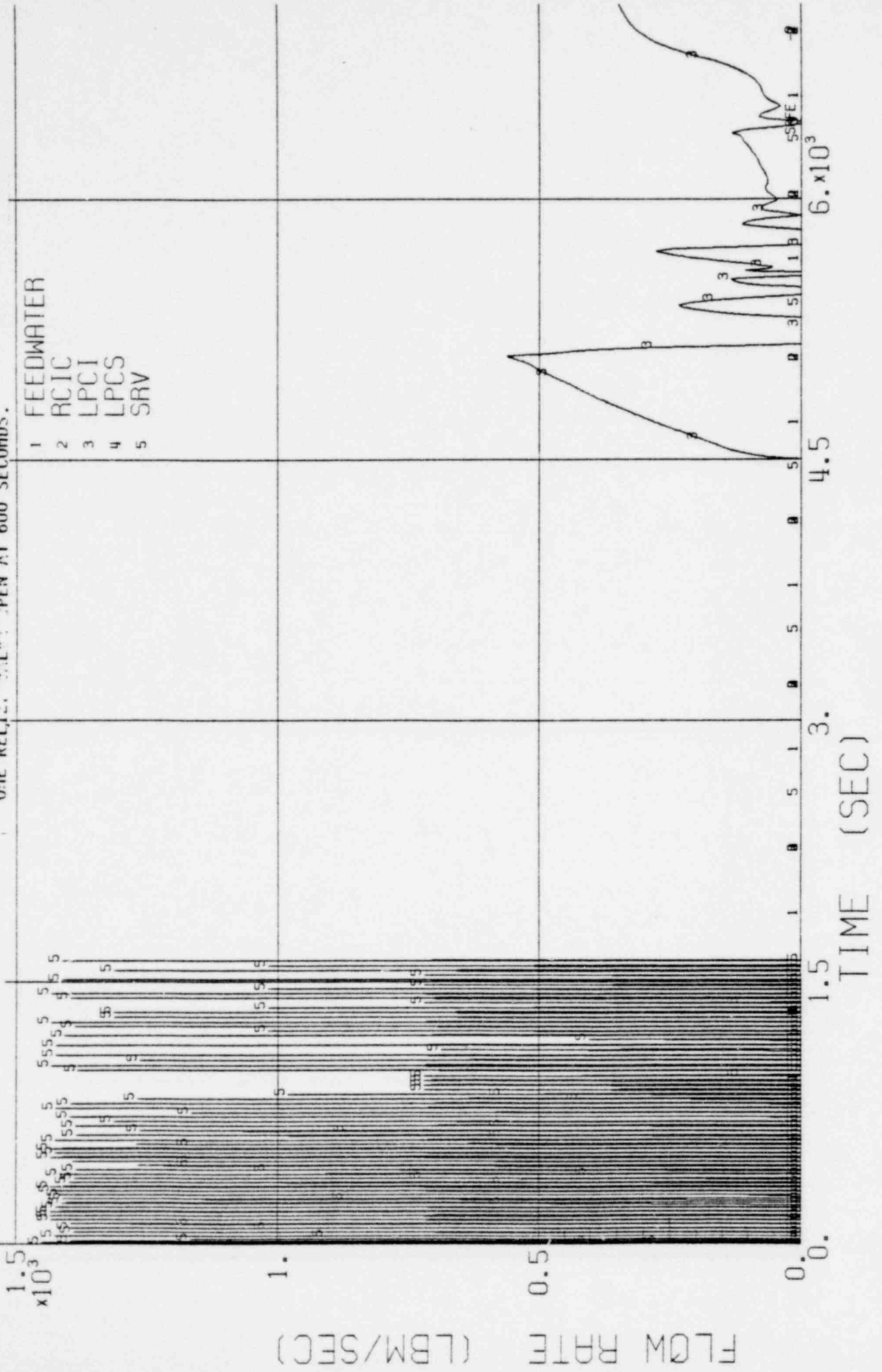
1 LEVEL INSIDE SHROUD
2 LEVEL OUTSIDE SHROUD

WATER LEVEL (FT)
1549 241



BWR/G-218

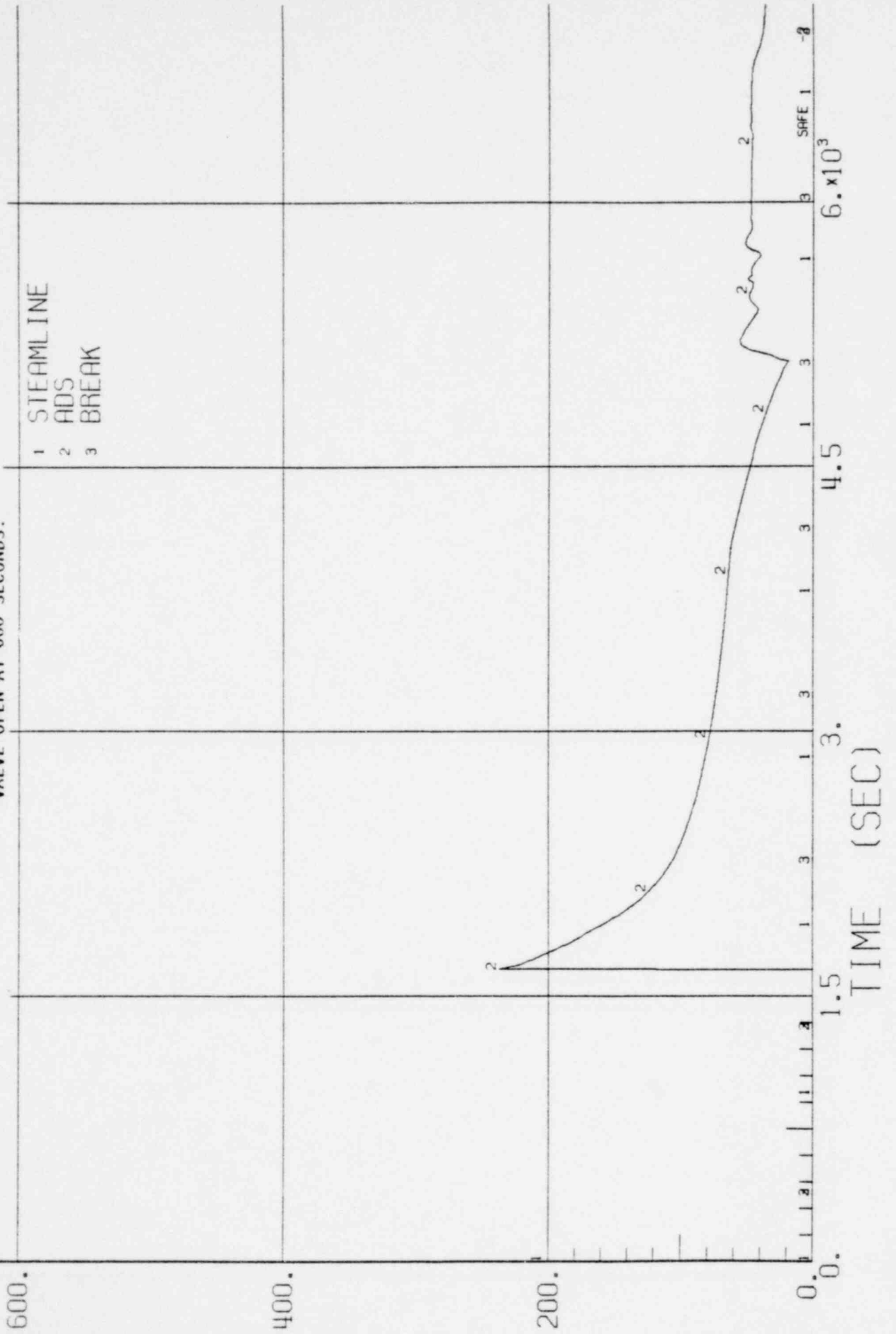
FIGURE 3.5.2.1-30.3 SYSTEM FLOW RATES VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE,
ONE RELIEF VALVE OPEN AT 600 SECONDS.



BWR/6-218

FIGURE 3.5.2.1-30.4 FLOW RATES VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, ONE RELIEF VALVE OPEN AT 600 SECONDS.

- 1 STEAMLINER
- 2 ADS
- 3 BREAK



FLOW RATE (LBM/SEC)

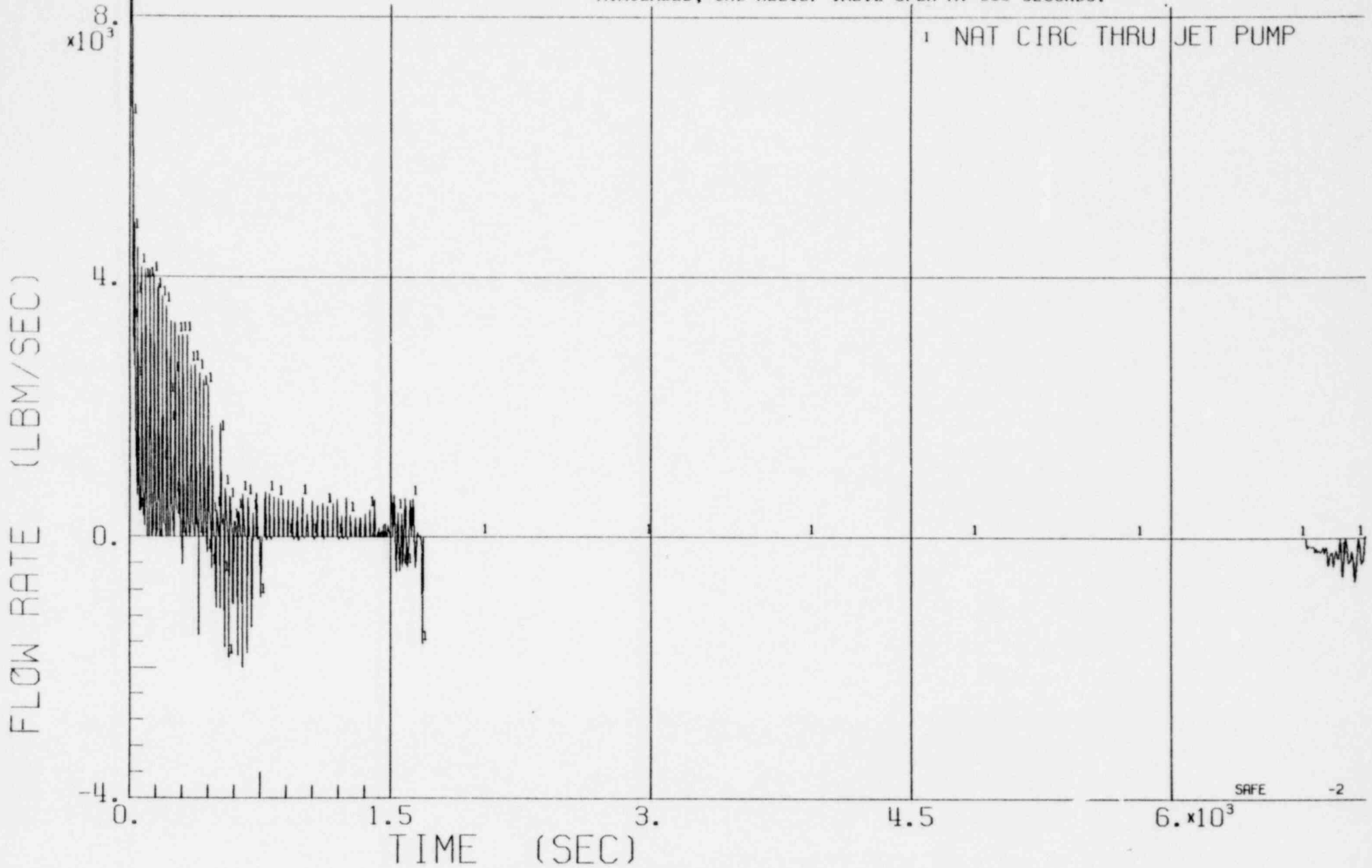
1549 243

TIME (SEC)

SAFE 1 -8

BWR/6-218

FIGURE 3.5.2.1-30.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, ONE RELIEF VALVE OPEN AT 600 SECONDS.



1549 244

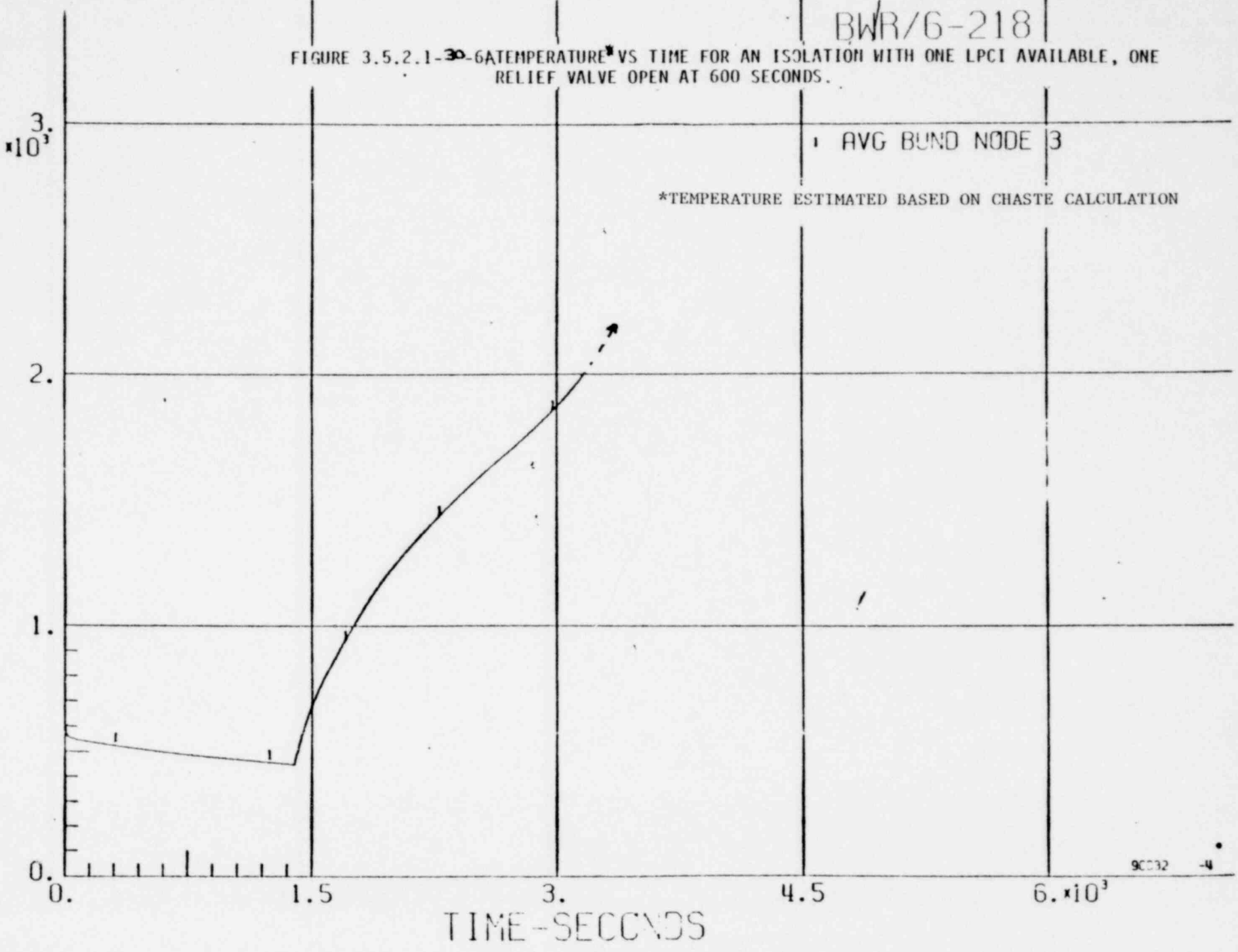
BWR/6-218

FIGURE 3.5.2.1-30-6 TEMPERATURE VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, ONE RELIEF VALVE OPEN AT 600 SECONDS.

AVG BUND NODE 3

*TEMPERATURE ESTIMATED BASED ON CHASTE CALCULATION

542 6451
1549 245
PEAK CLAD TEMP - DEG F



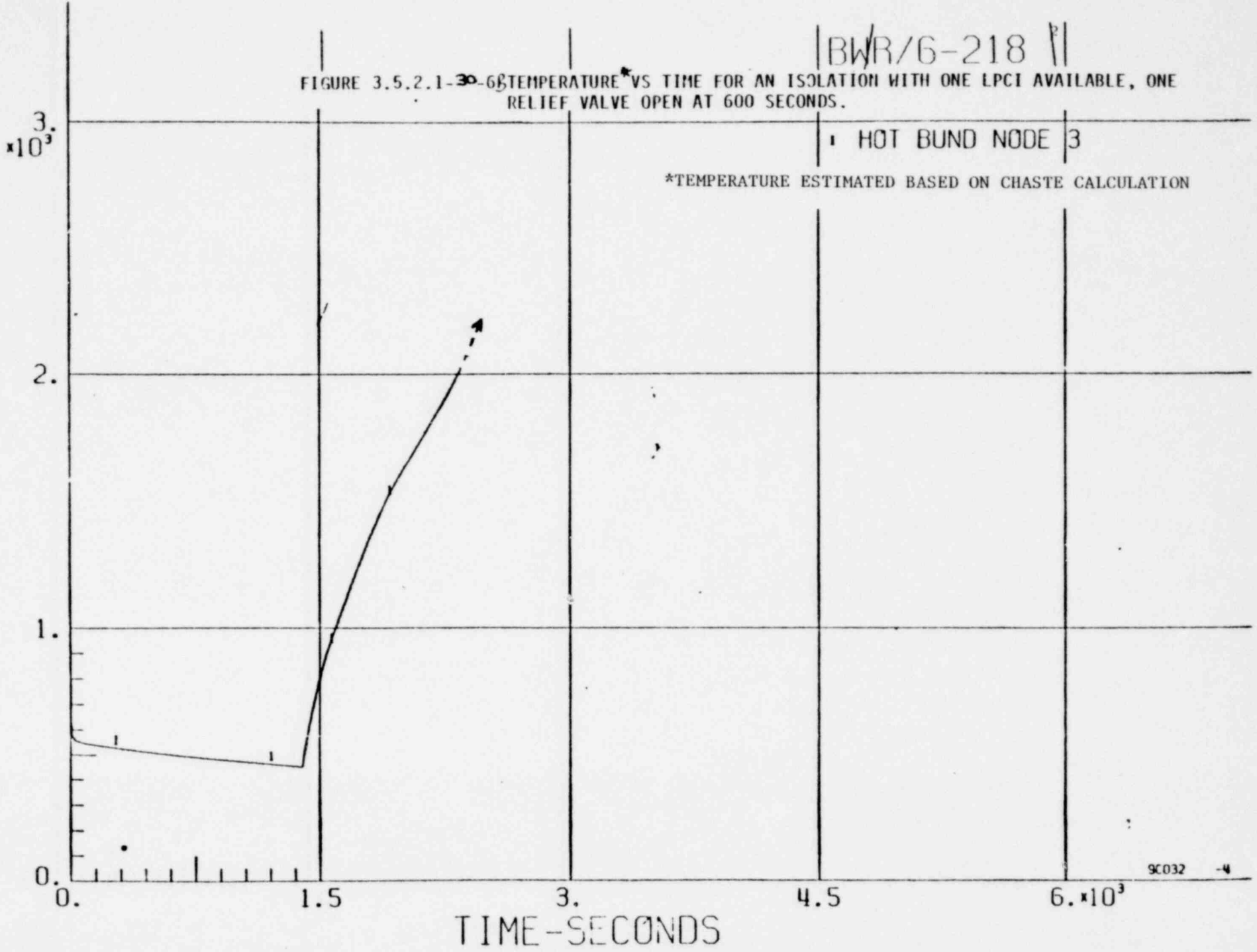
BWR/6-218

FIGURE 3.5.2.1-30-68 TEMPERATURE* VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, ONE RELIEF VALVE OPEN AT 600 SECONDS.

HOT BUND NODE 3

*TEMPERATURE ESTIMATED BASED ON CHASTE CALCULATION

PEAK CLAD TEMP - DEG F



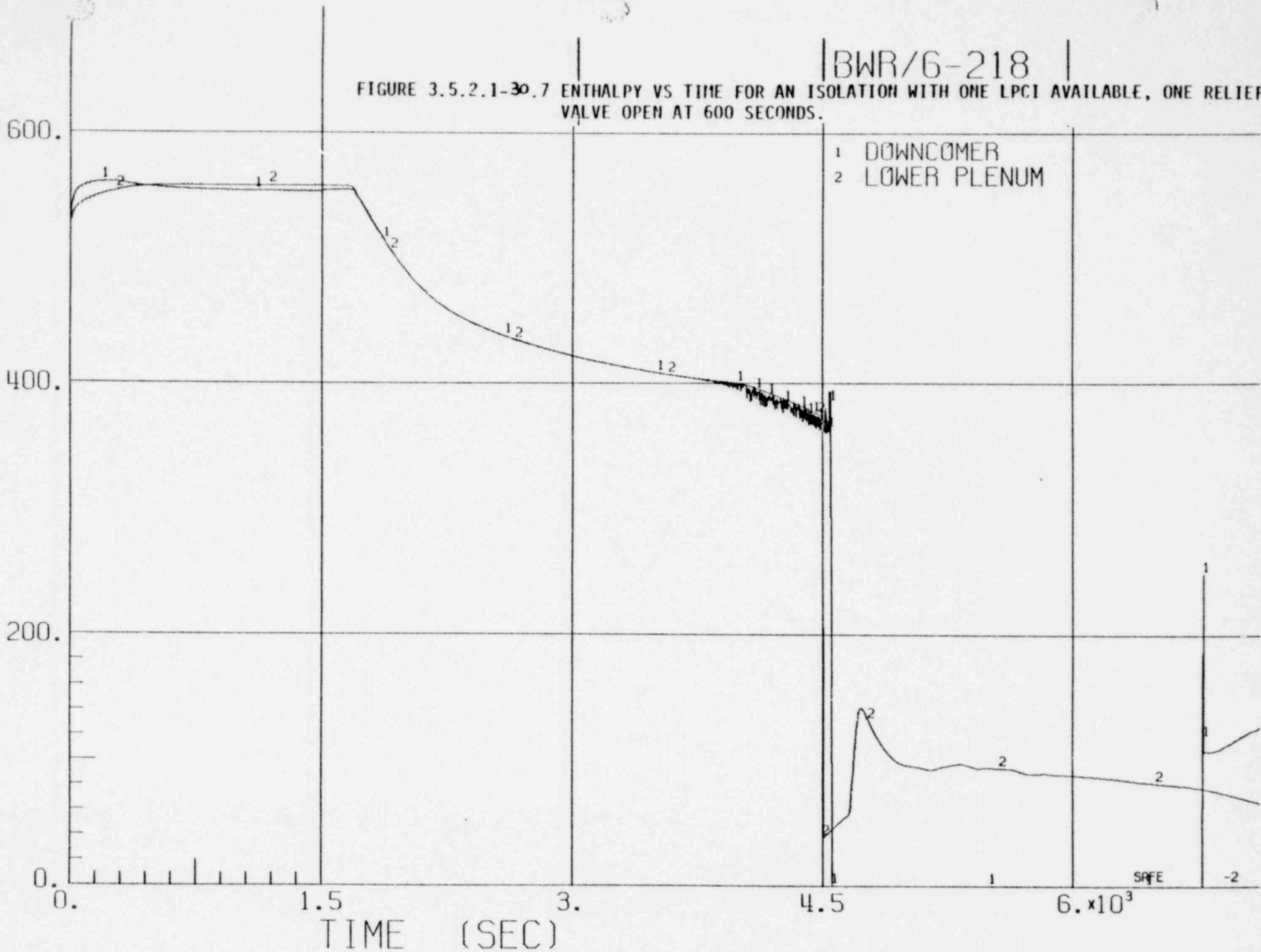
1549 246

BWR/6-218

FIGURE 3.5.2.1-30.7 ENTHALPY VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, ONE RELIEF VALVE OPEN AT 600 SECONDS.

ENTHALPY (BTU/LBM)

1 DOWNCOMER
2 LOWER PLENUM



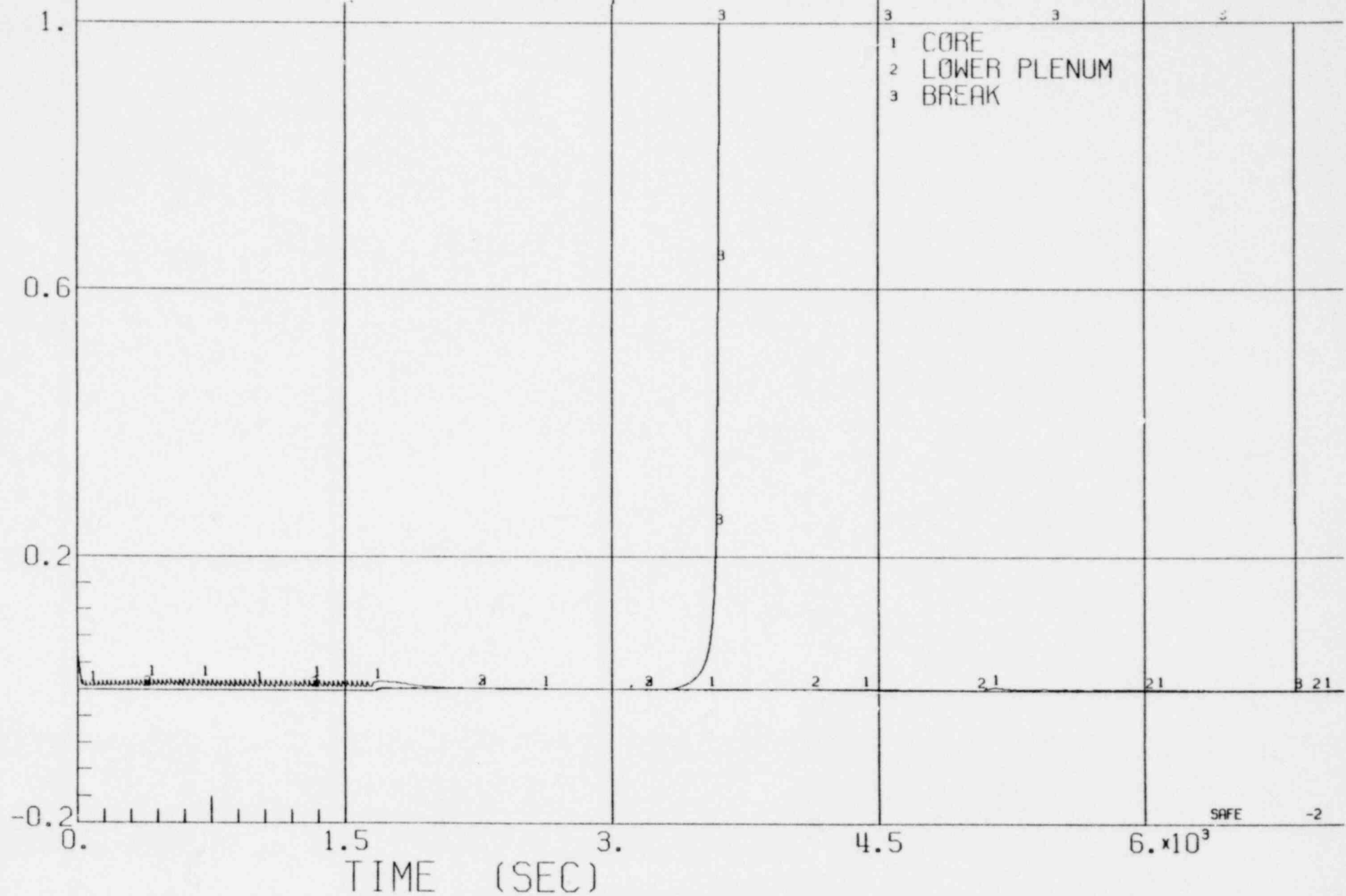
1549 247

SAFE

-2

BWR/6-218

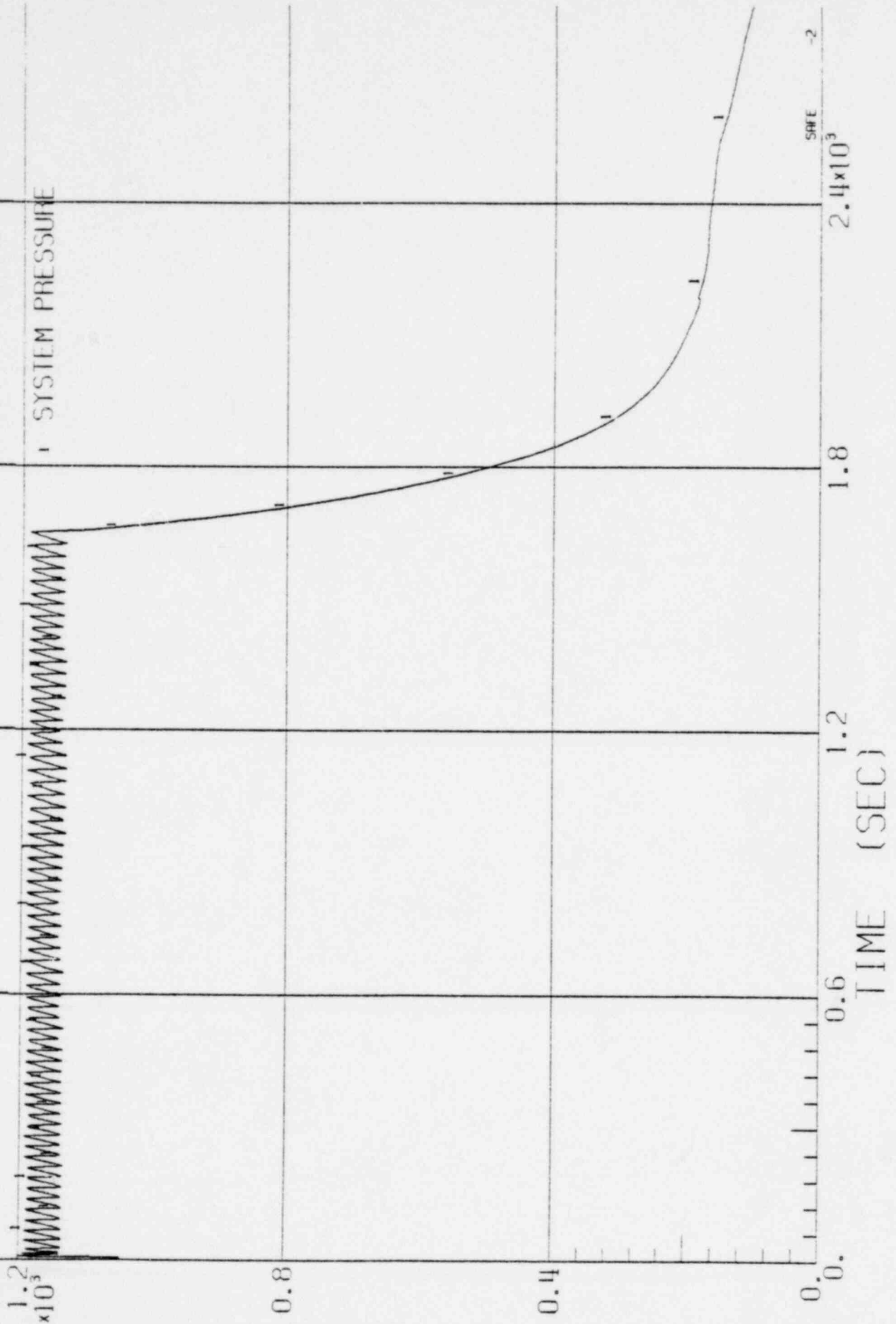
FIGURE 3.5.2.1-30.8 QUALITY VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, ONE RELIEF VALVE OPEN AT 600 SECONDS.



1549 248
QUALITY

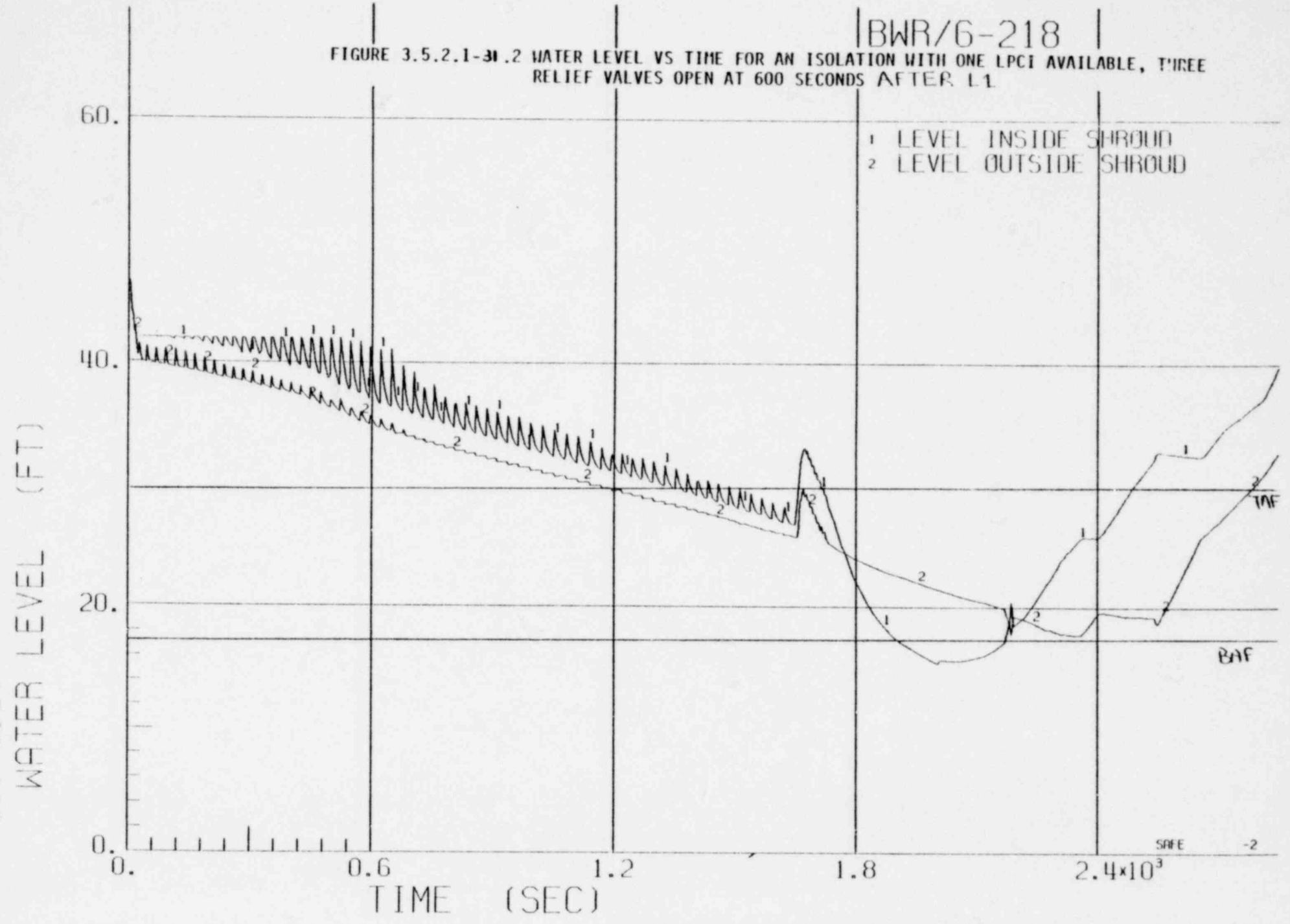
BWR/6-218

FIGURE 3.5.2.1-30.1 SYSTEM PRESSURE VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, THREE RELIEF VALVES OPEN AT 600 SECONDS AFTER LI.



BWR/6-218

FIGURE 3.5.2.1-31.2 WATER LEVEL VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, THREE RELIEF VALVES OPEN AT 600 SECONDS AFTER L1



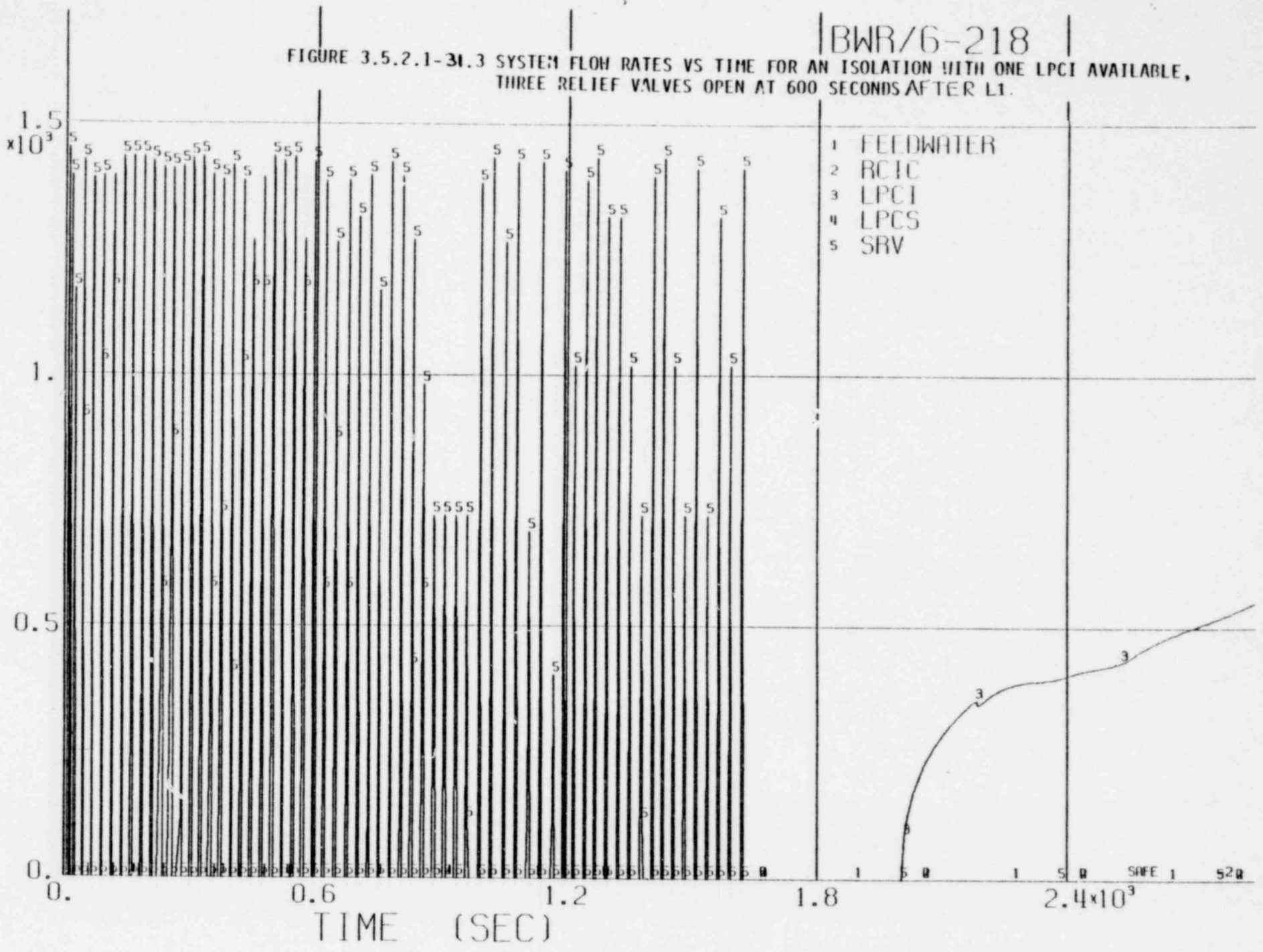
1549 250
WATER LEVEL (FT)

TIME (SEC)

BWR/6-218

FIGURE 3.5.2.1-31.3 SYSTEM FLOW RATES VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, THREE RELIEF VALVES OPEN AT 600 SECONDS AFTER L1.

1549 251
FLOW RATE (LBM/SEC)
M07

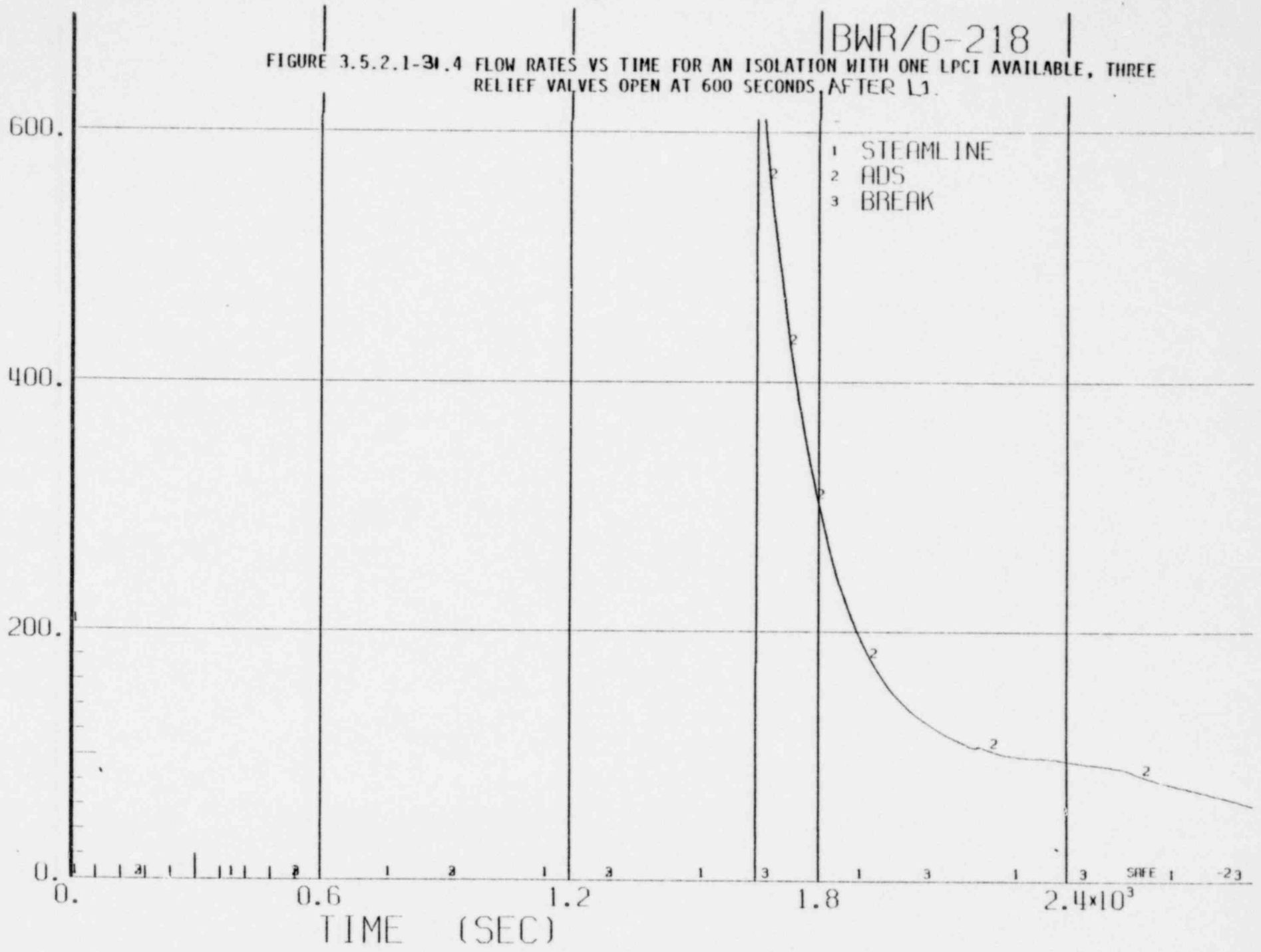


SAFE 1 520

BWR/6-218

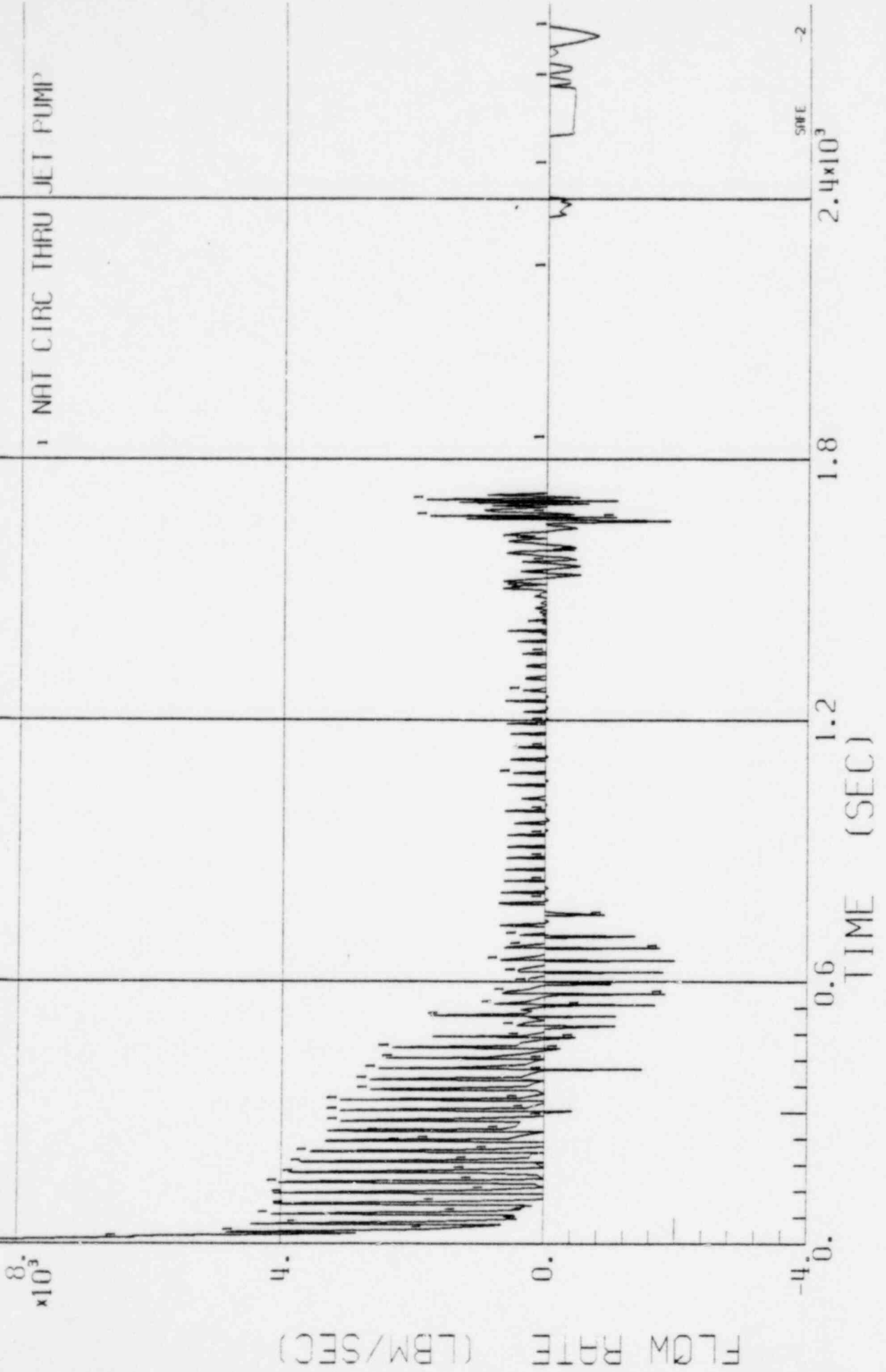
FIGURE 3.5.2.1-31.4 FLOW RATES VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, THREE RELIEF VALVES OPEN AT 600 SECONDS AFTER L1.

1549 252
FLOW RATE (LBM/SEC)



BWR/6-218

FIGURE 3.5.2.1-31.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, THREE RELIEF VALVES OPEN AT 600 SECONDS AFTER L1.



FLOW RATE (LBM/SEC)

1549 253

BWR/6-218

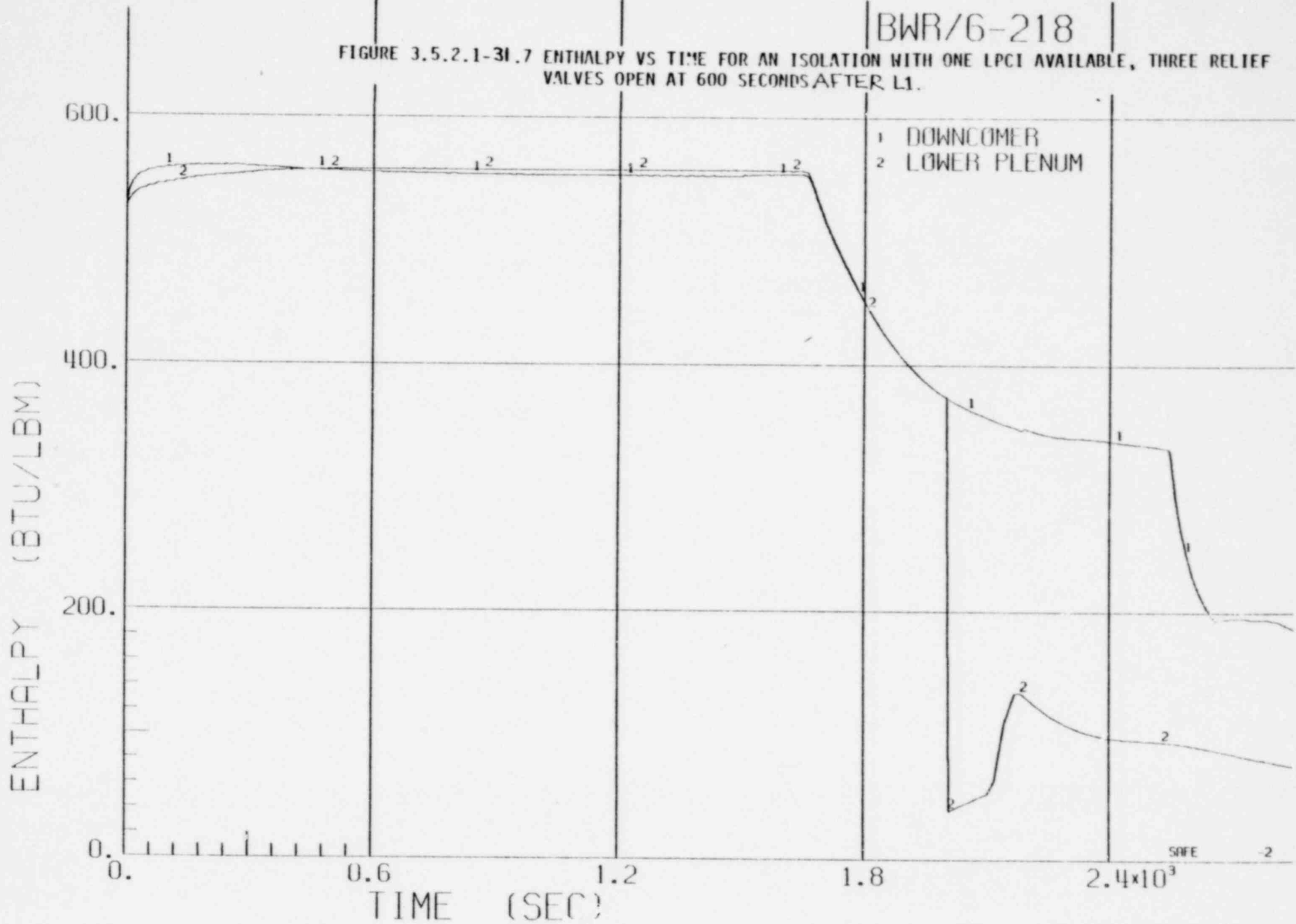
FIGURE 3.5.2.1-31.6 TEMPERATURE VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, THREE RELIEF VALVES OPEN AT 600 SECONDS AFTER LI.



1549 254

BWR/6-218

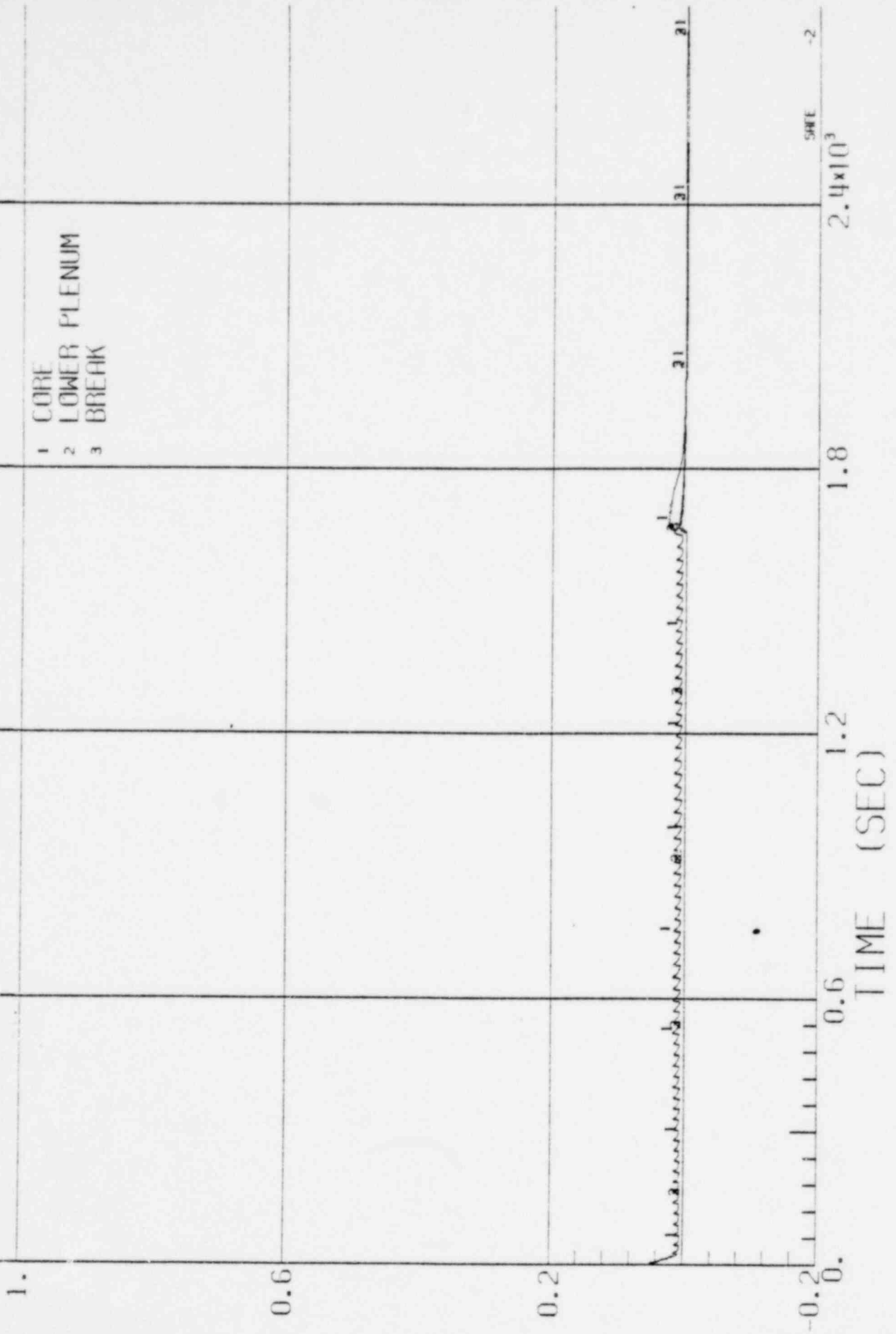
FIGURE 3.5.2.1-31.7 ENTHALPY VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, THREE RELIEF VALVES OPEN AT 600 SECONDS AFTER L1.



1549 255

BWR/6-218

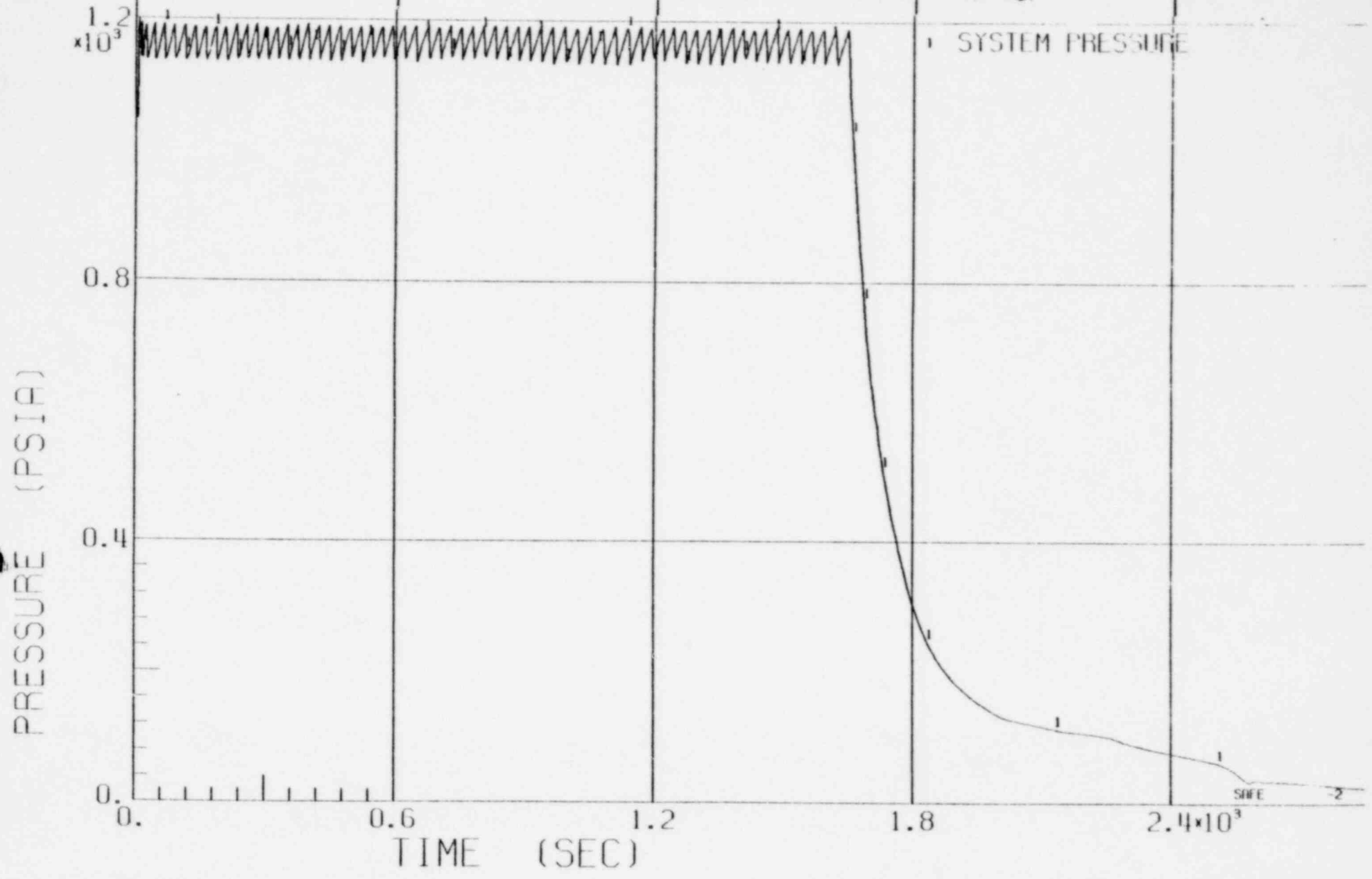
FIGURE 3.5.2.1-31.8 QUALITY VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, THREE RELIEF VALVES OPEN AT 600 SECONDS AFTER L1



QUALITY

BWR/6-218

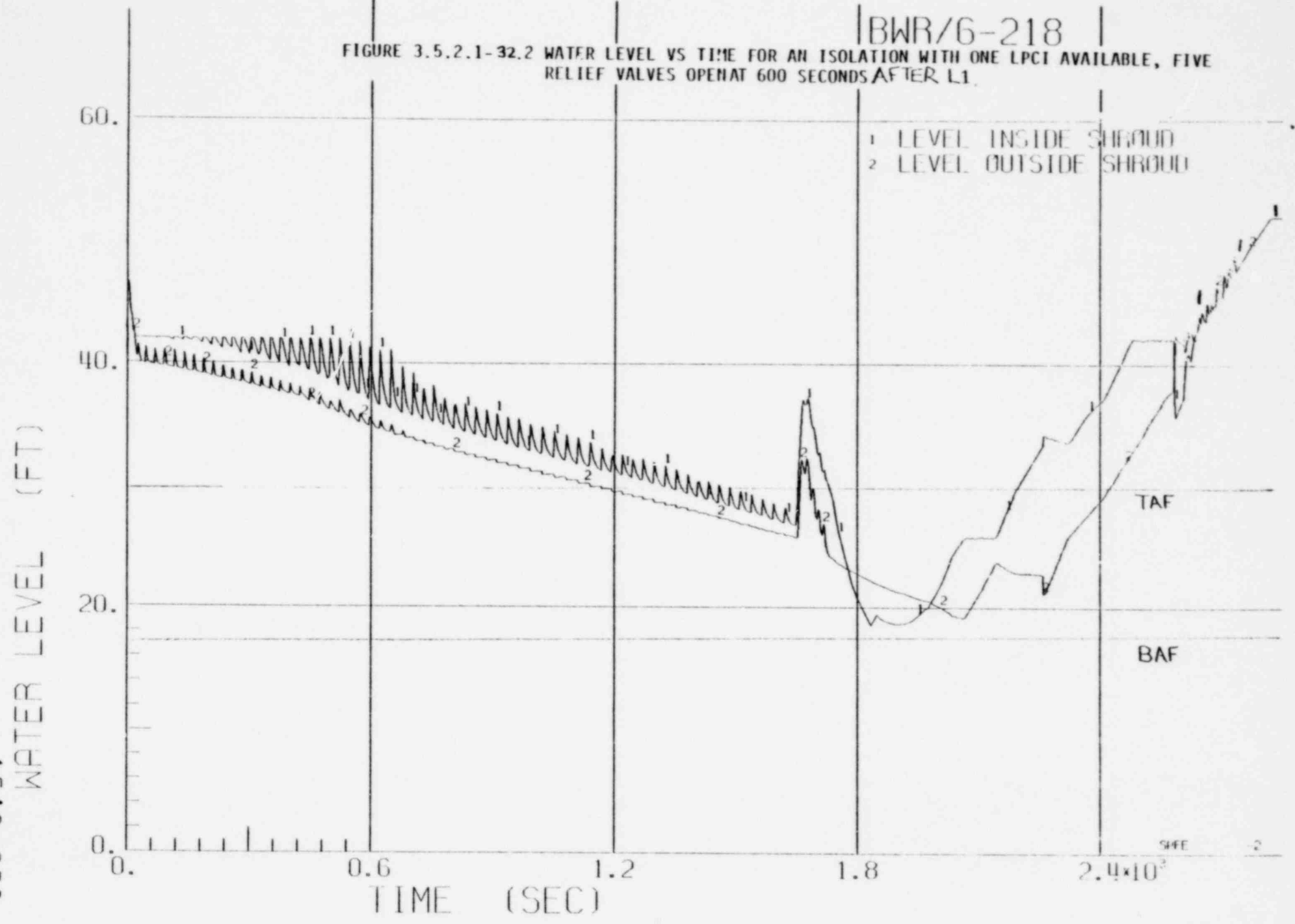
FIGURE 3.5.2.1-32.1 SYSTEM PRESSURE VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, FIVE RELIEF VALVES OPEN AT 600 SECONDS AFTER L1.



1549 257

BWR/6-218

FIGURE 3.5.2.1-32.2 WATER LEVEL VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, FIVE RELIEF VALVES OPEN AT 600 SECONDS AFTER L1.

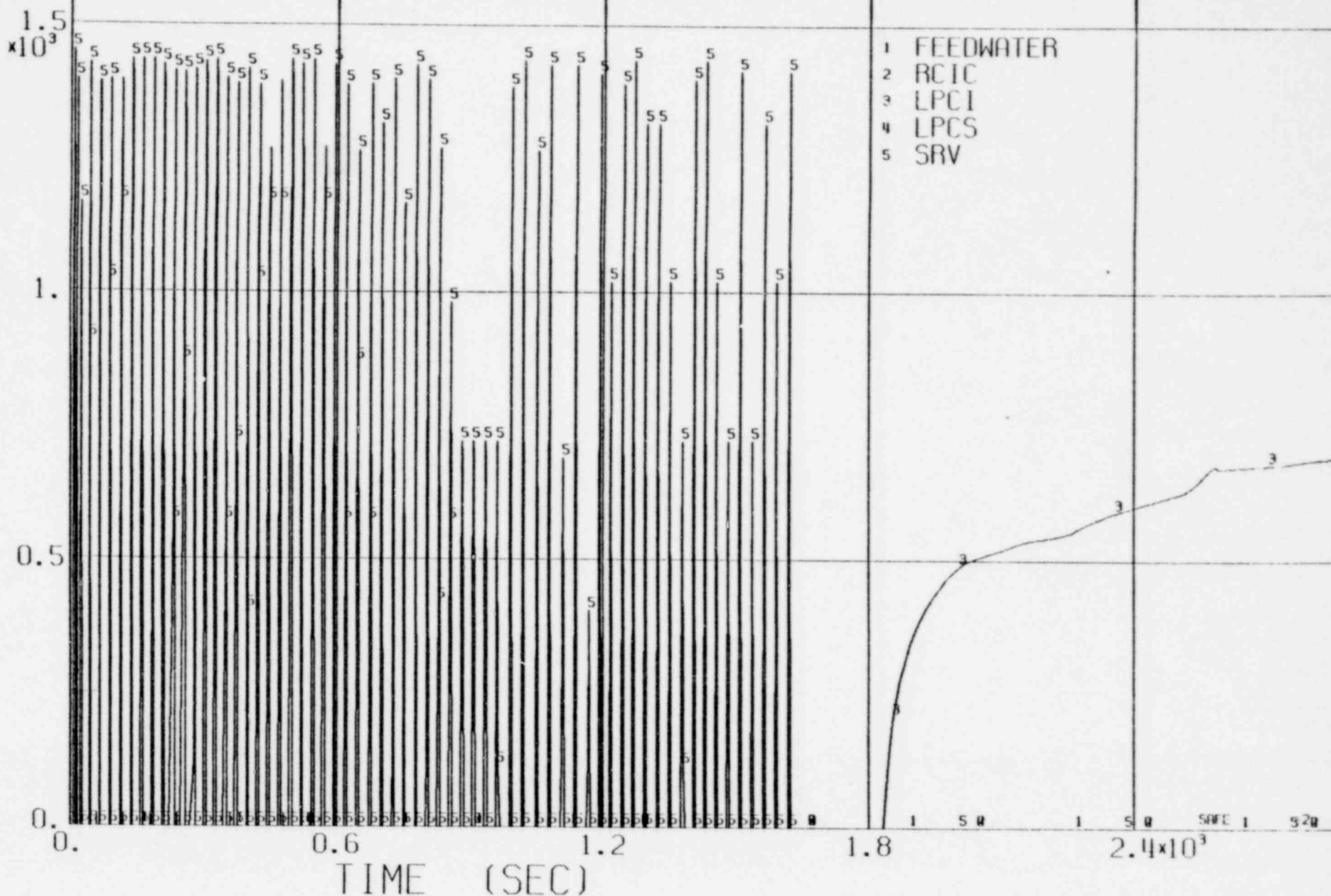


WATER LEVEL (FT)

1549 258

BWR/6-218

FIGURE 3.5.2.1-32.3 SYSTEM FLOW RATES VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, FIVE RELIEF VALVES OPEN AT 600 SECONDS AFTER LI.

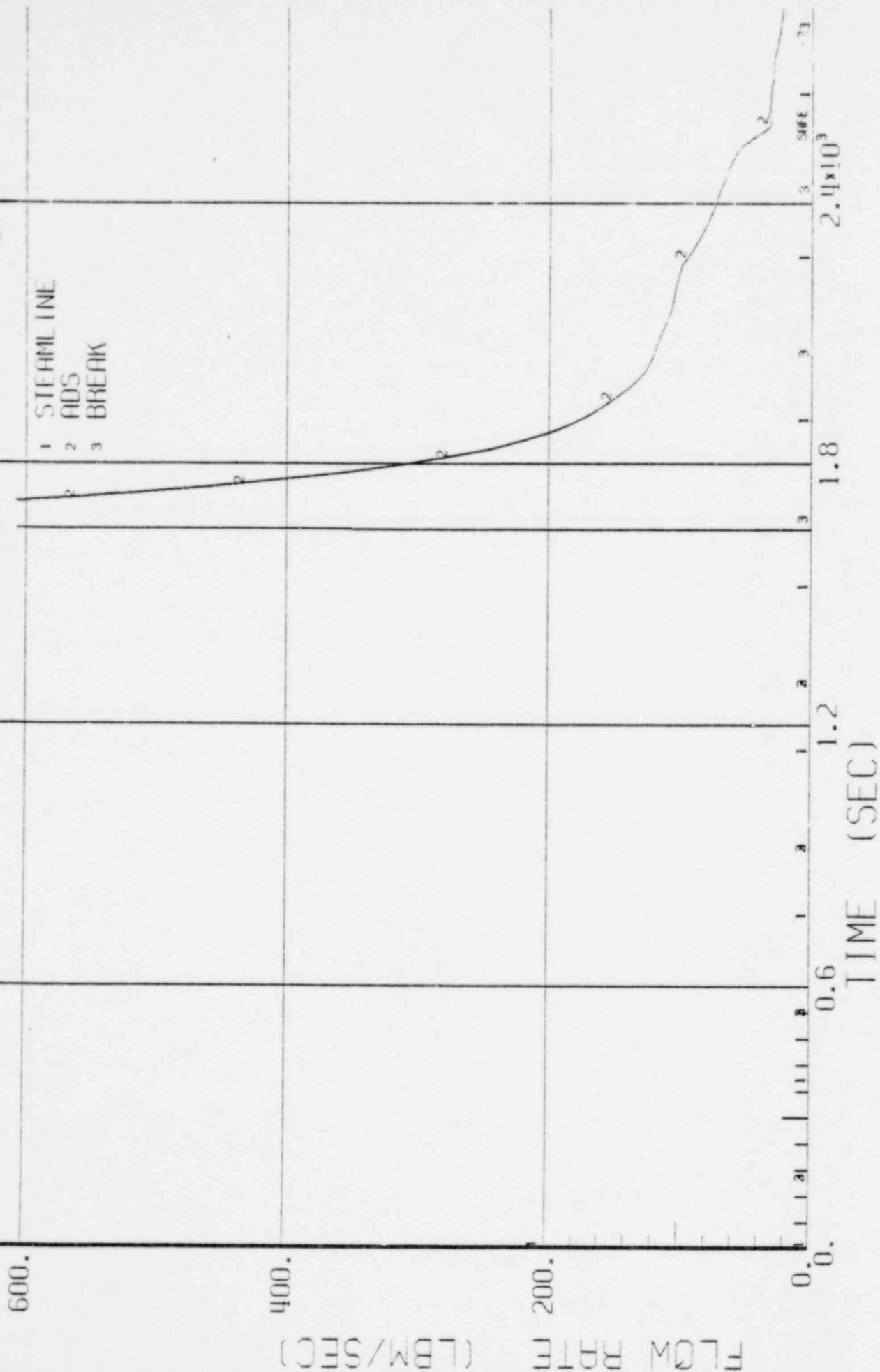


1549 250

BWR/6-218

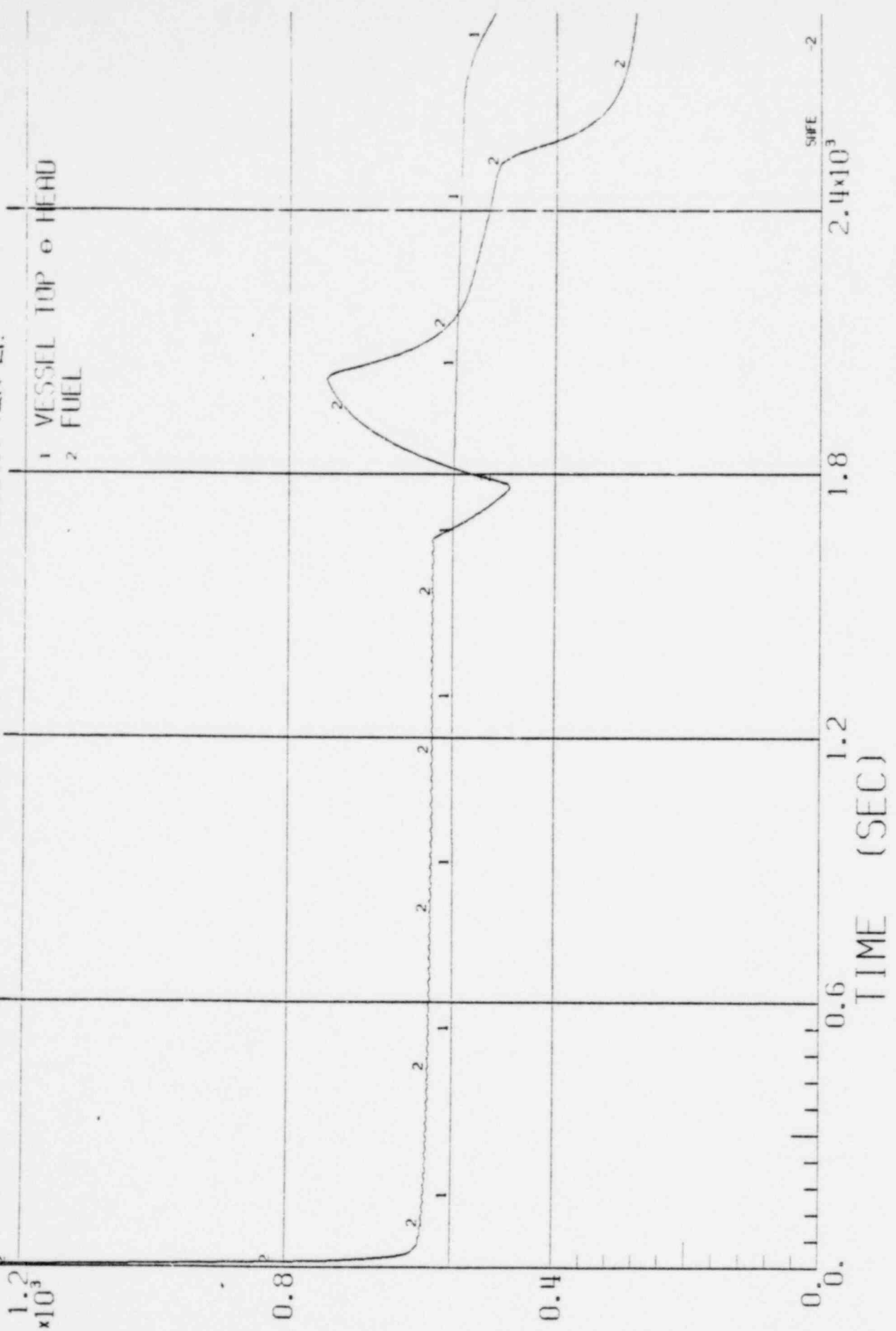
FIGURE 3.5.2.1-32.4 FLOW RATES VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE. FIVE RELIEF VALVES OPEN AT 600 SECONDS AFTER L1.

- 1 STEAMLINER
- 2 ADS
- 3 BREAK



BWR/6-218

FIGURE 3.5.2.1-32.6 TEMPERATURE VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, FIVE RELIEF VALVES OPEN AT 600 SECONDS AFTER LI.



TEMPERATURE (DEG F)

1549 262

SAFE -2

2.4 $\times 10^3$

1.8

1.2

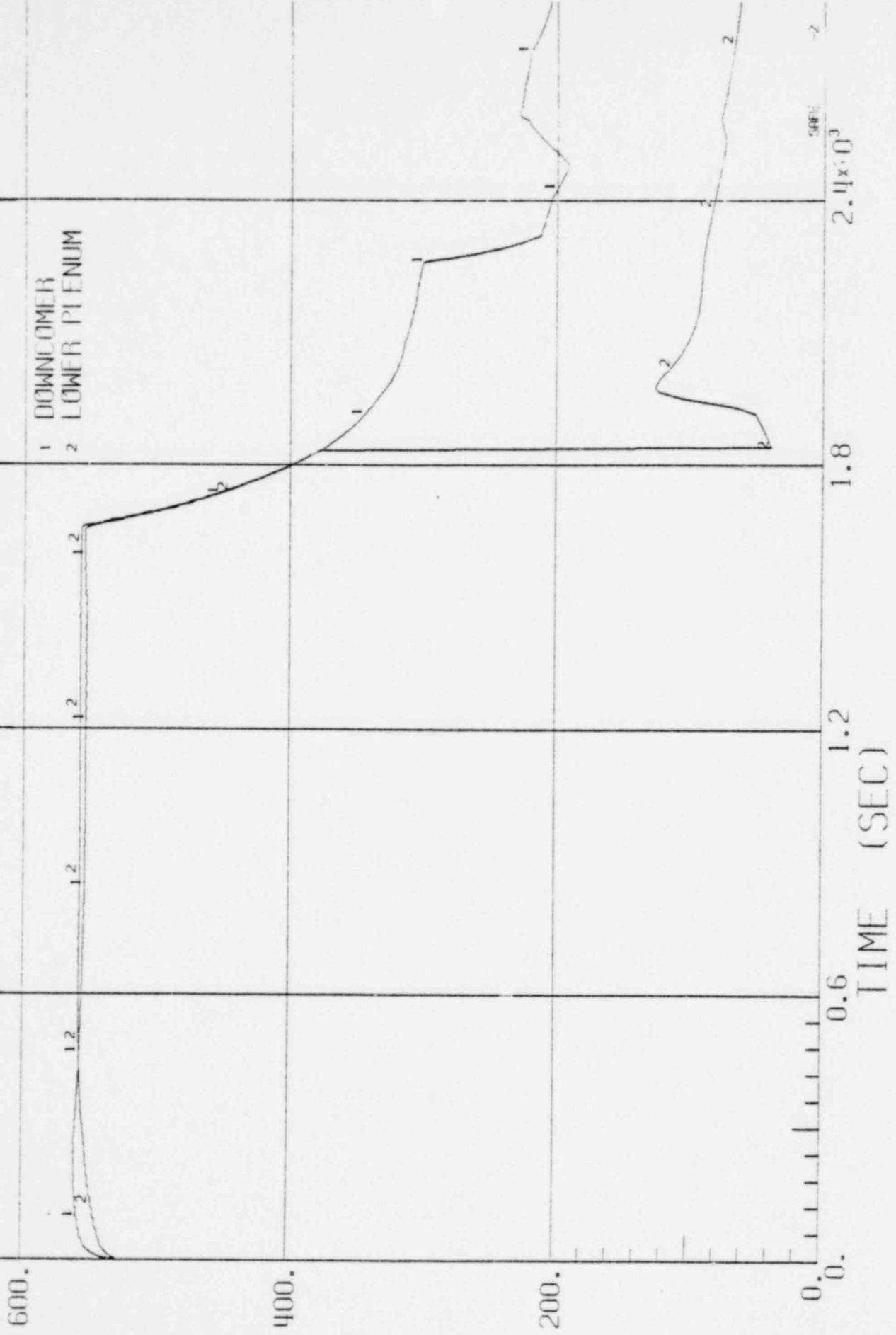
0.6

TIME (SEC)

BWR/6-218
 WITH ONE LPCI AVAILABLE, FIVE RELIEF
 VALVES OPEN AT 600 SECONDS AFTER 1.

1 DOWNCOMER
 2 LOWER PLENUM

FIGURE 3.5.2.1-32.7 ENTHALPY VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, FIVE RELIEF VALVES OPEN AT 600 SECONDS AFTER 1.

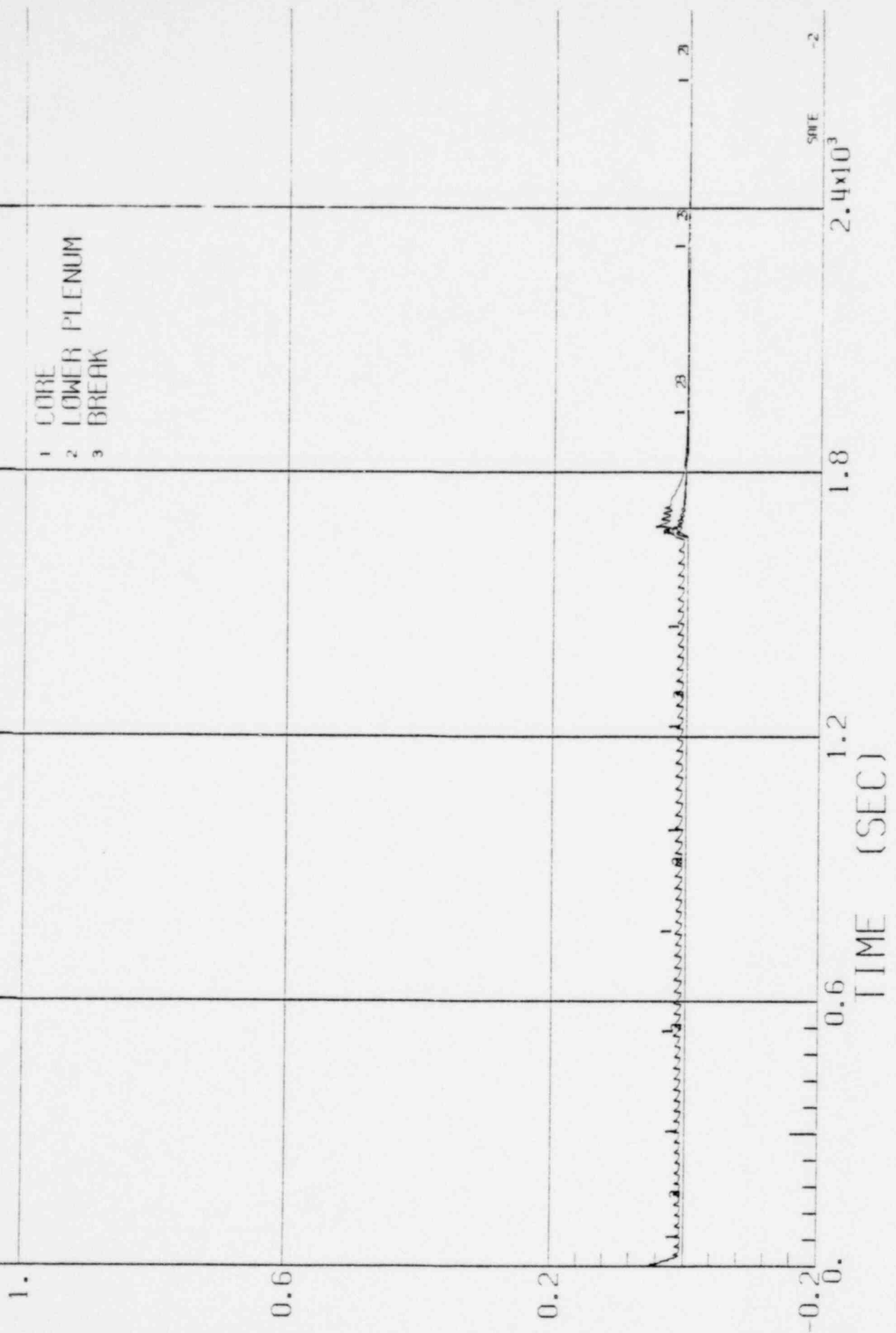


ENTHALPY (BTU/LBM)

TIME (SEC)

BWR/6-218

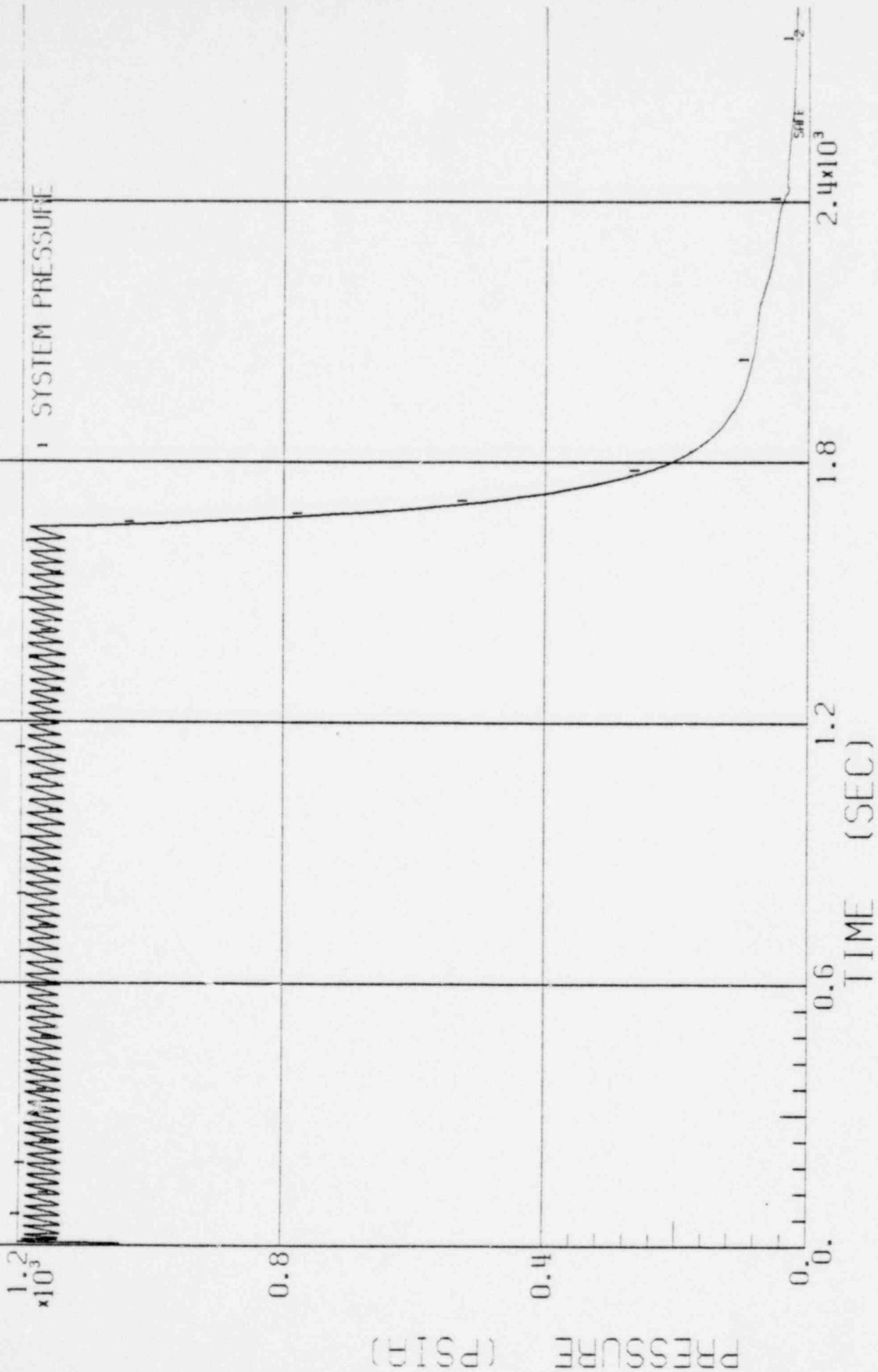
FIGURE 3.5.2.1-32.8 QUALITY VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, FIVE RELIEF VALVES OPEN AT 600 SECONDS AFTER L1.



QUALITY

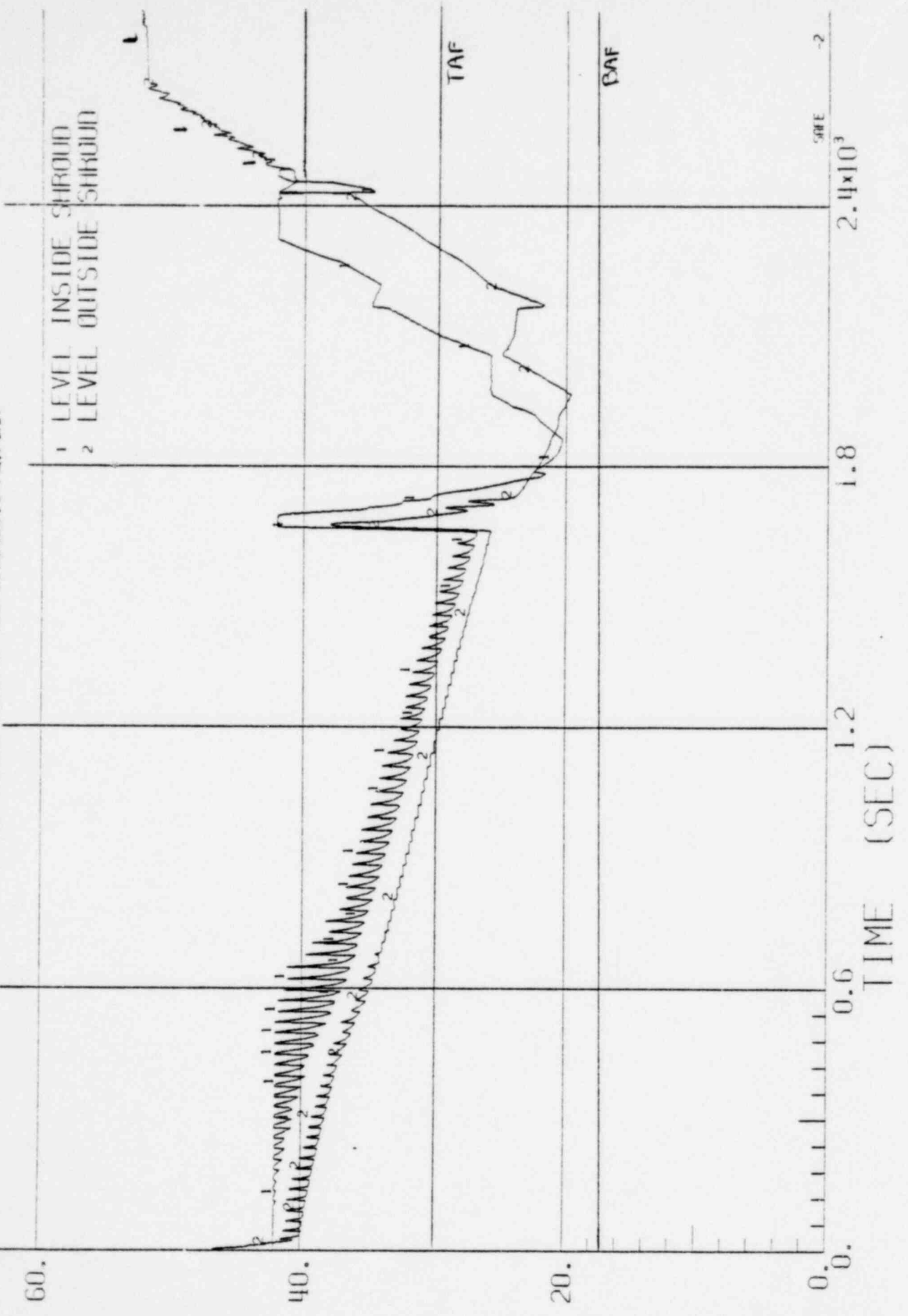
BWR/6-218

FIGURE 3.5.2.1-33.1 SYSTEM PRESSURE VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, SEVEN RELIEF VALVES OPEN AT 600 SECONDS AFTER L1.



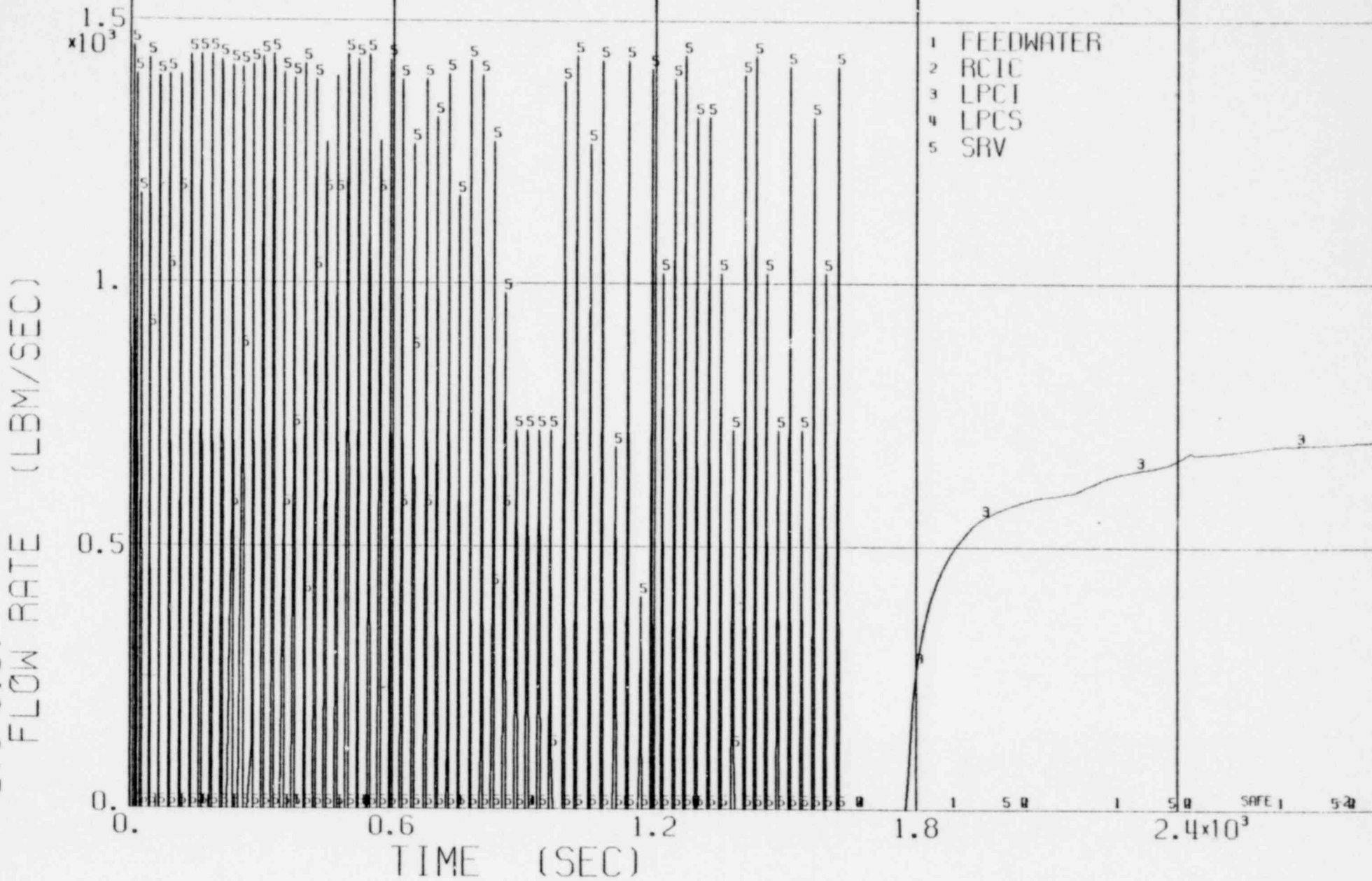
BWR/6-218

FIGURE 3.5.2.1-33.2 WATER LEVEL VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, SEVEN RELIEF VALVES OPEN AT 600 SECONDS AFTER L1.



BWR/6-218

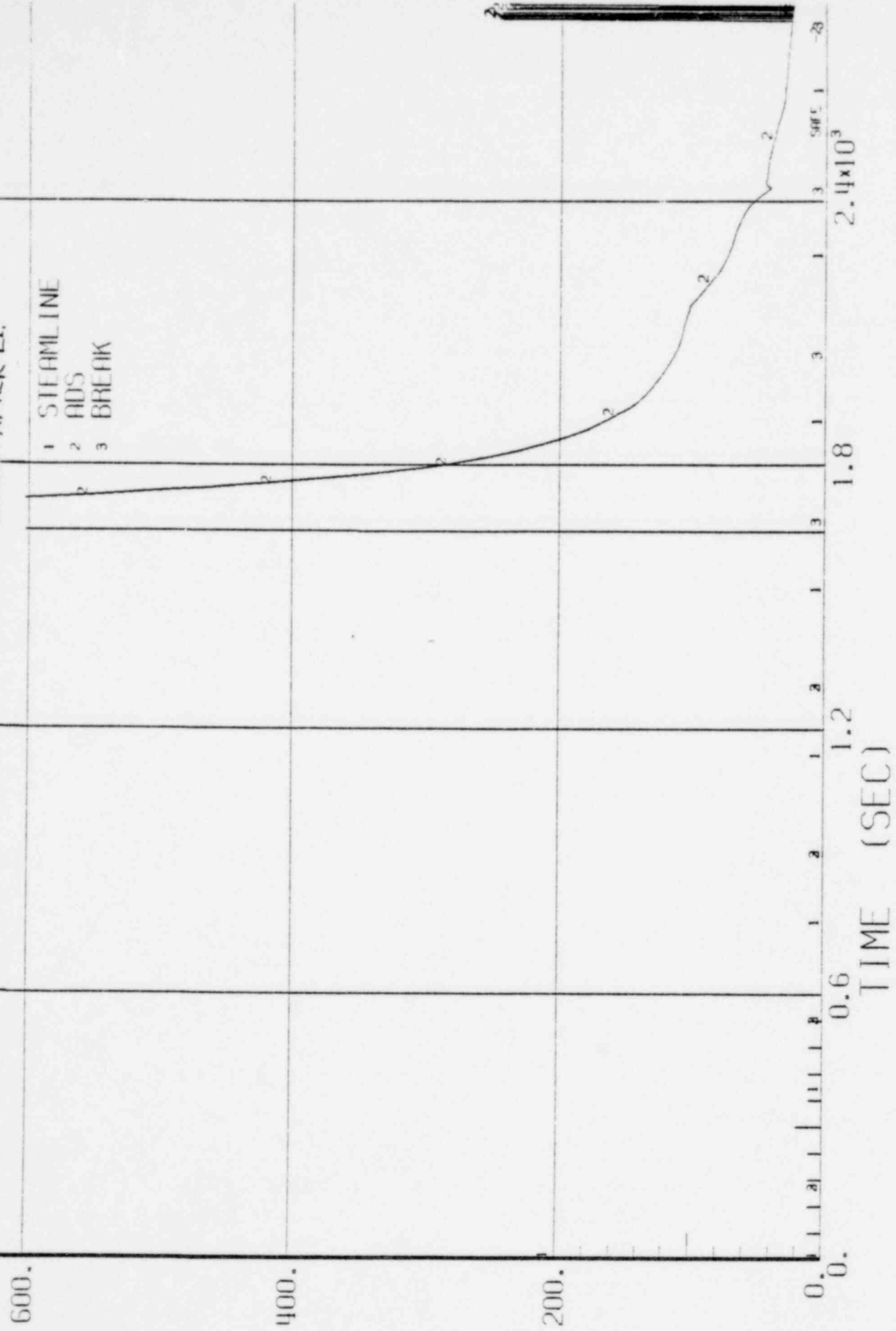
FIGURE 3.5.2.1-33.3 SYSTEM FLOW RATES VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, SEVEN RELIEF VALVES OPEN AT 600 SECONDS AFTER L1.



BWR/6-218

FIGURE 3.5.2.1-33.4 FLOW RATES VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, SEVEN RELIEF VALVES OPEN AT 600 SECONDS AFTER LI.

- 1 STEAMLINER
- 2 AIDS
- 3 BREAK

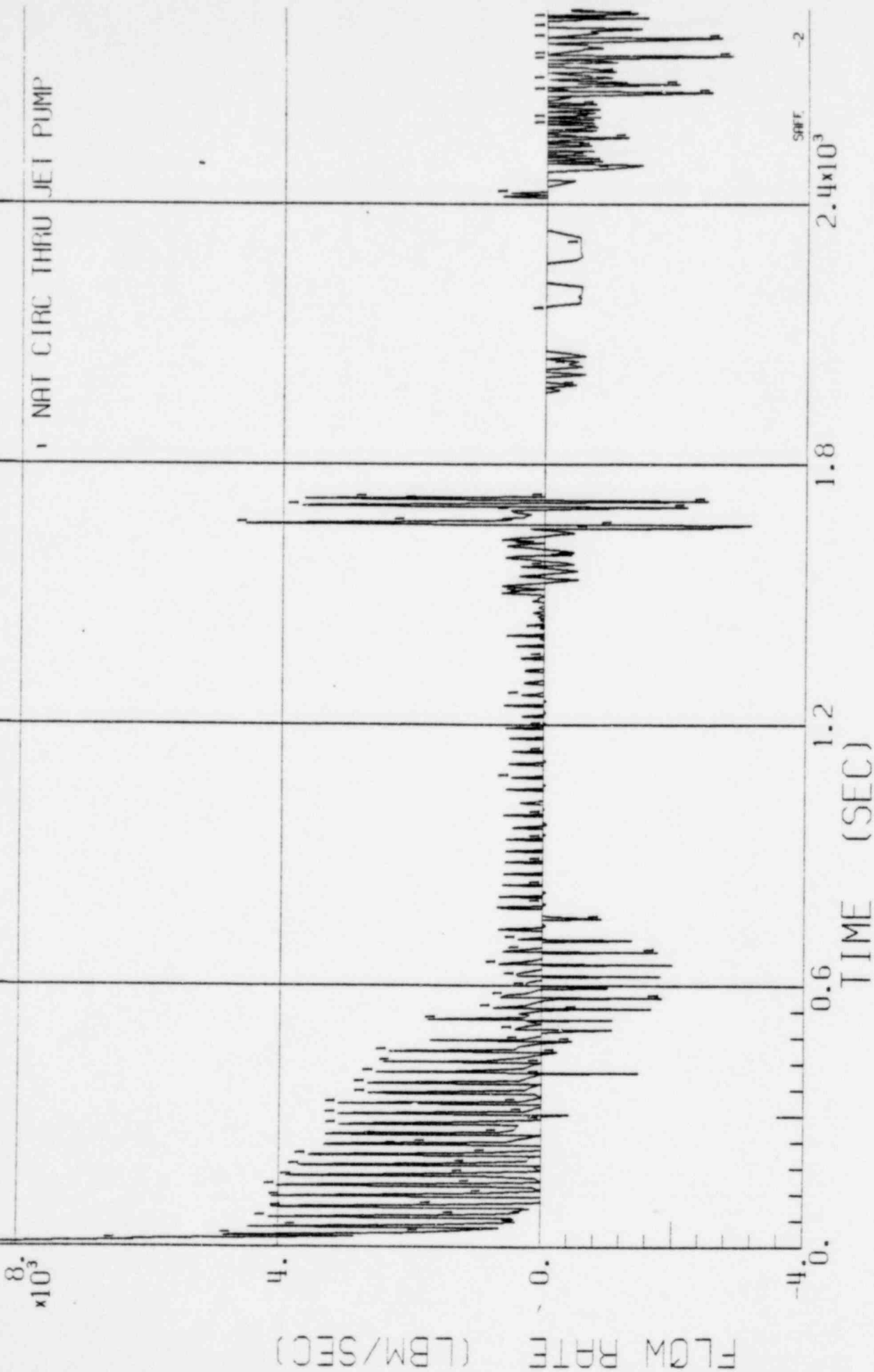


892 268
FLOW RATE (LBM/SEC)

TIME (SEC)

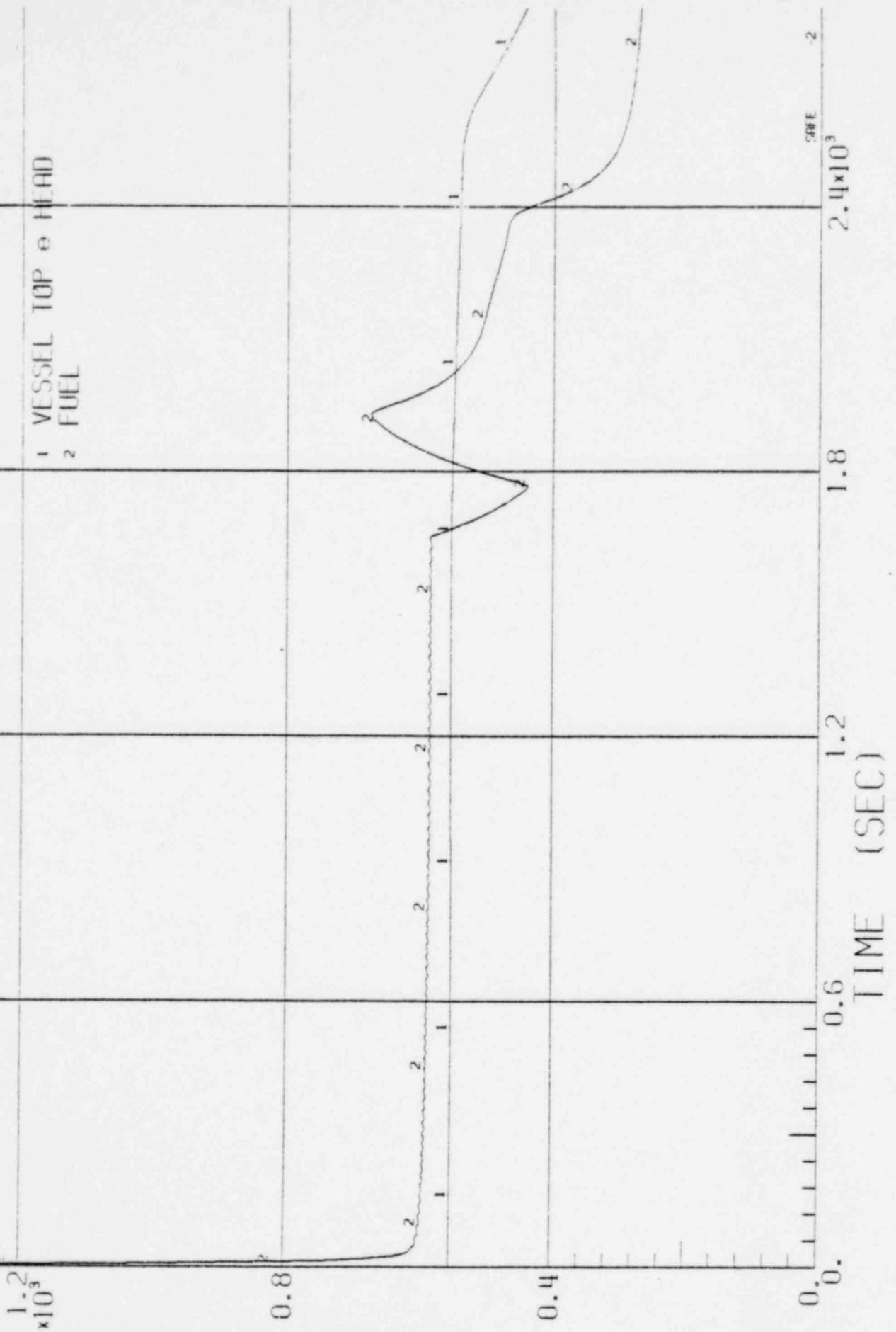
BWR/6-218

FIGURE 3.5.2.1-33.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, SEVEN RELIEF VALVES OPEN AT 500 SECONDS AFTER L3.



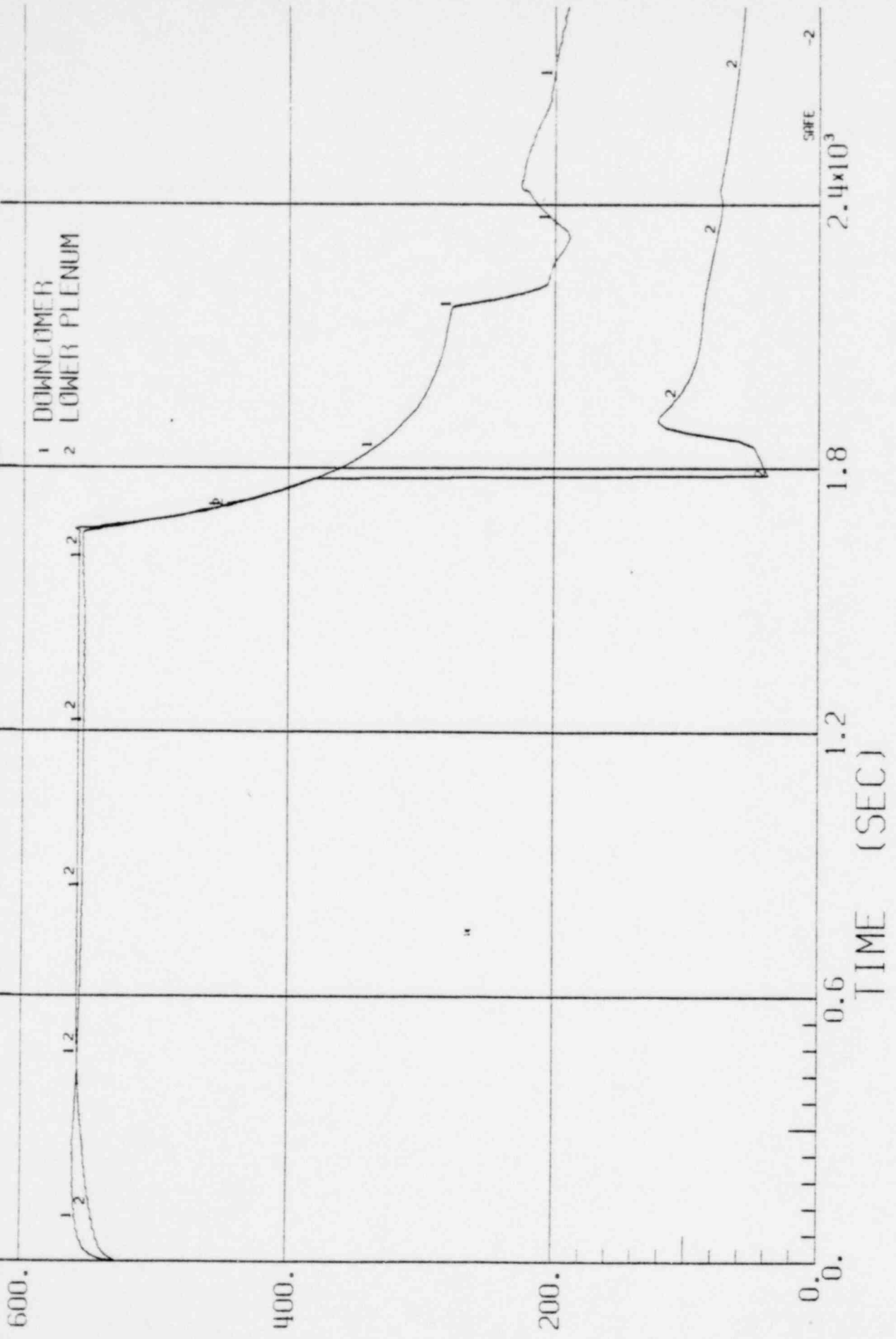
BWR/6-218

FIGURE 3.5.2.1-33.6 TEMPERATURE VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE,
SEVEN RELIEF VALVES OPEN AT 600 SECONDS AFTER LL.



BWR/6-218

FIGURE 3.5.2.1-33.7 ENTHALPY VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, SEVEN RELIEF VALVES OPEN AT 600 SECONDS AFTER L1.

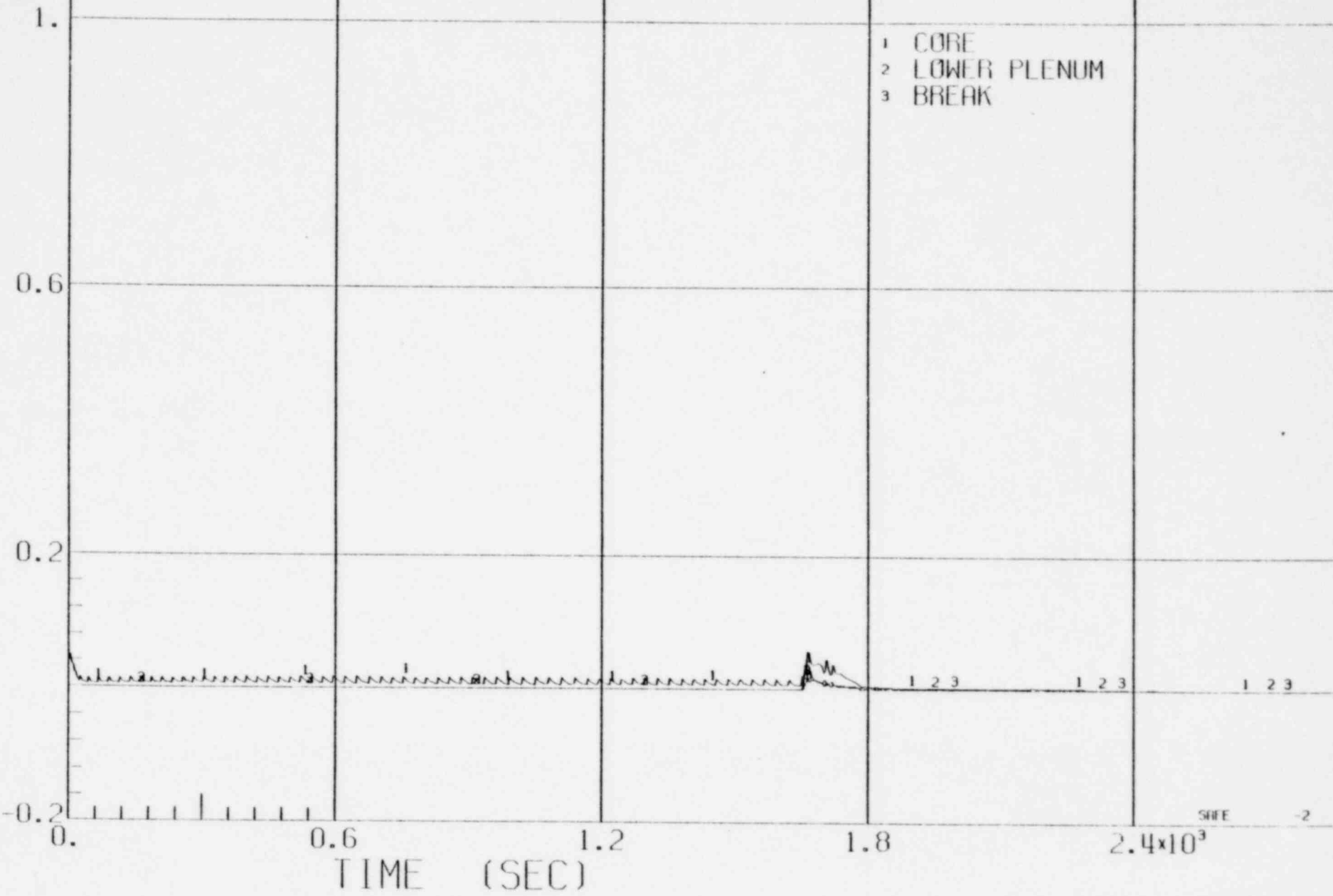


ENTHALPY (BTU/LBM)
1549 271

SAFE -2

BWR/6-218

FIGURE 3.5.2.1-33.8 QUALITY VS TIME FOR AN ISOLATION WITH ONE LPCI AVAILABLE, SEVEN RELIEF VALVES OPEN AT 600 SECONDS AFTER L1.

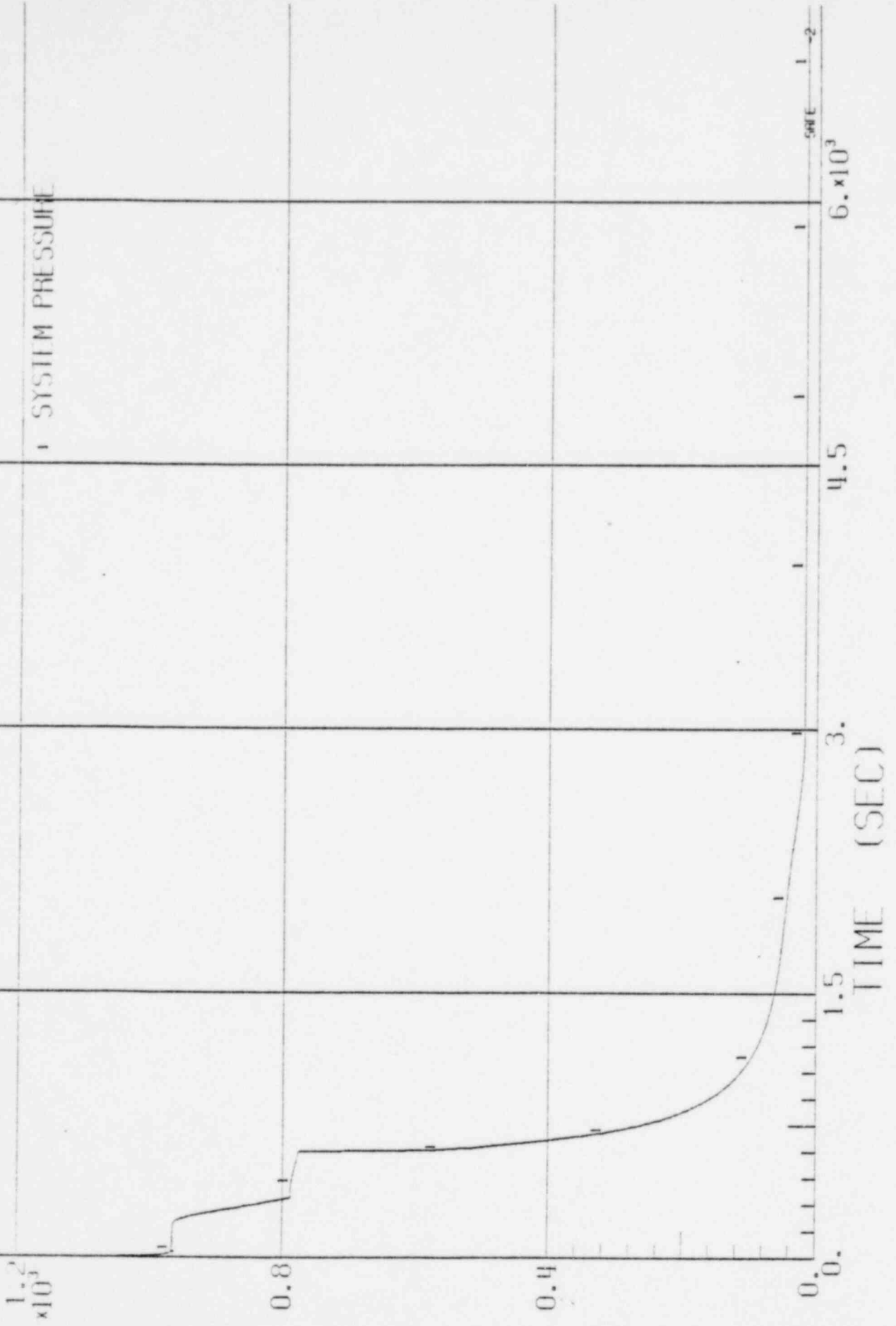


1549 272

BWR/4-218

0.01 FT² SUCTION BREAK WITH 0.007 HPCI

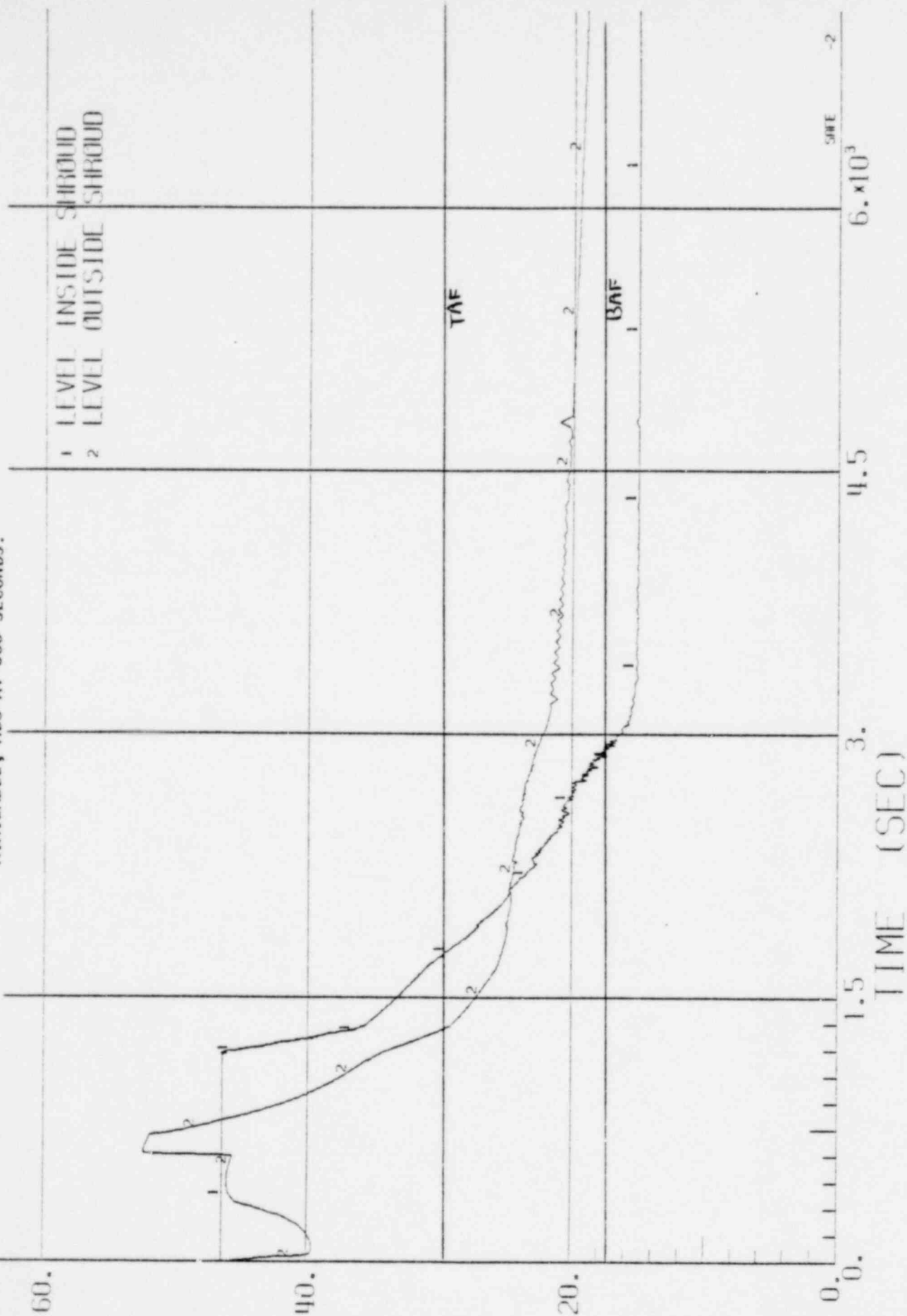
FIGURE 3.5.2.1-34.1 SYSTEM PRESSURE VS TIME FOR A AVAILABLE, ADS AT 600 SECONDS.



1549 273
PRESSURE (PSIA)
TIME (SEC)

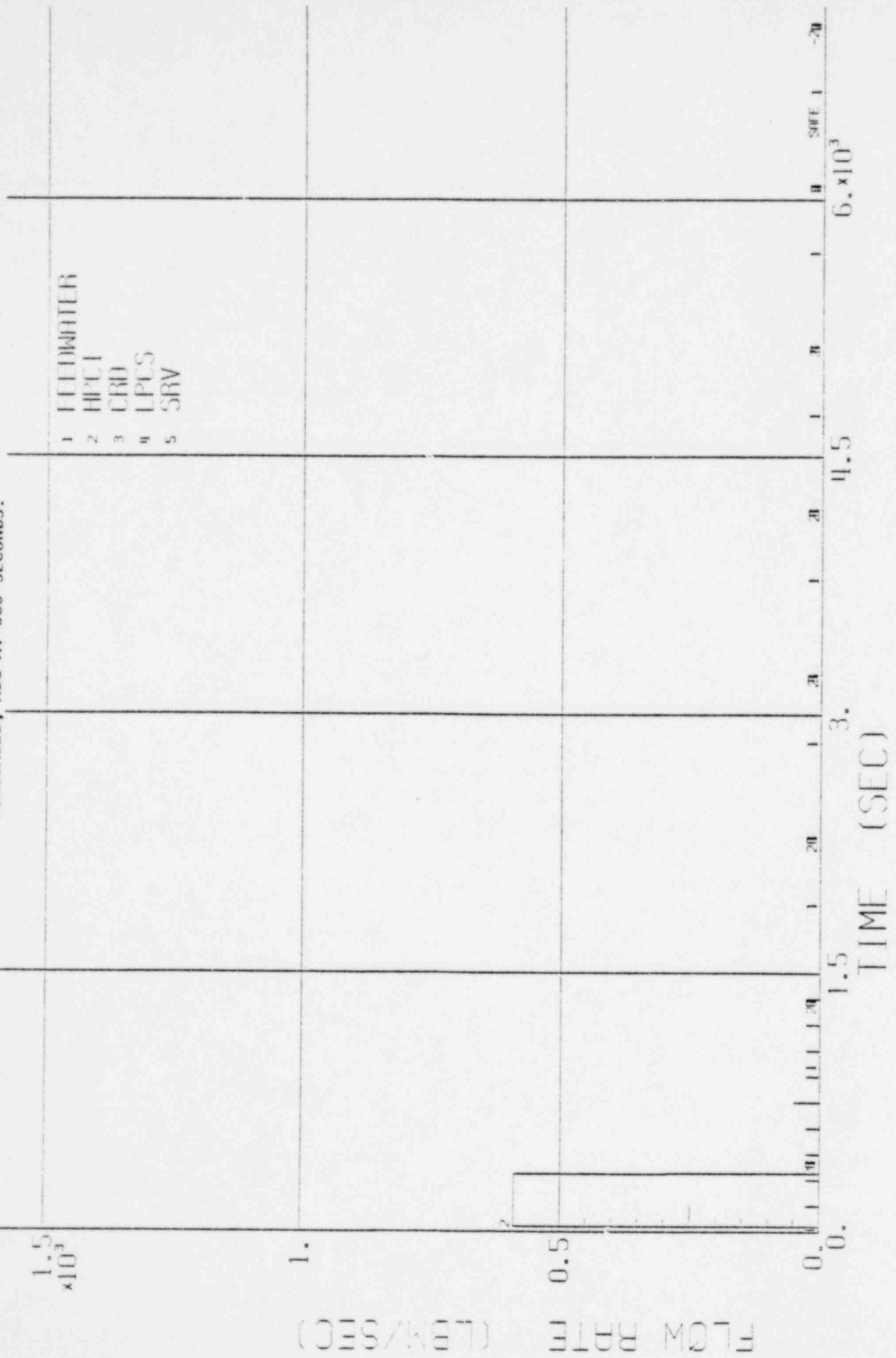
BWR/4-218

FIGURE 3.5.2.1-34.2 WATER LEVEL VS TIME FOR A 0.01 FT² SUCTION BREAK WITH ONLY HPCI AVAILABLE, ADS AT 600 SECONDS.



BWR/4-218

FIGURE 3.5.2.1-34.3 SYSTEM FLOW RATES VS TIME FOR A 0.01 FT² SUCTION BREAK WITH ONLY HPCI AVAILABLE, ADS AT 600 SECONDS.



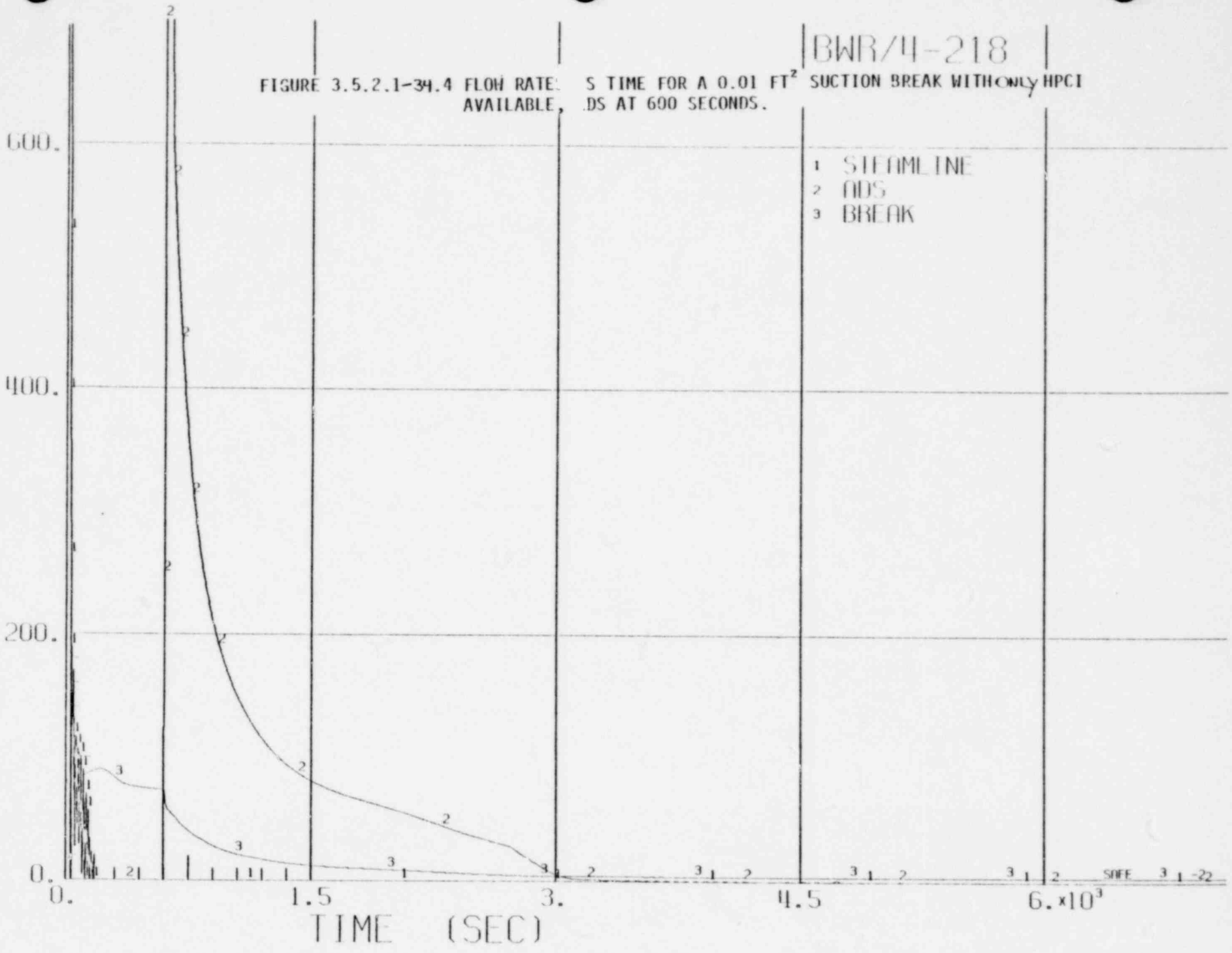
BWR/4-218

FIGURE 3.5.2.1-34.4 FLOW RATE: 5 TIME FOR A 0.01 FT² SUCTION BREAK WITH ONLY HPCI AVAILABLE, DS AT 600 SECONDS.

FLOW RATE (OES/MBT) STEAM MDTL

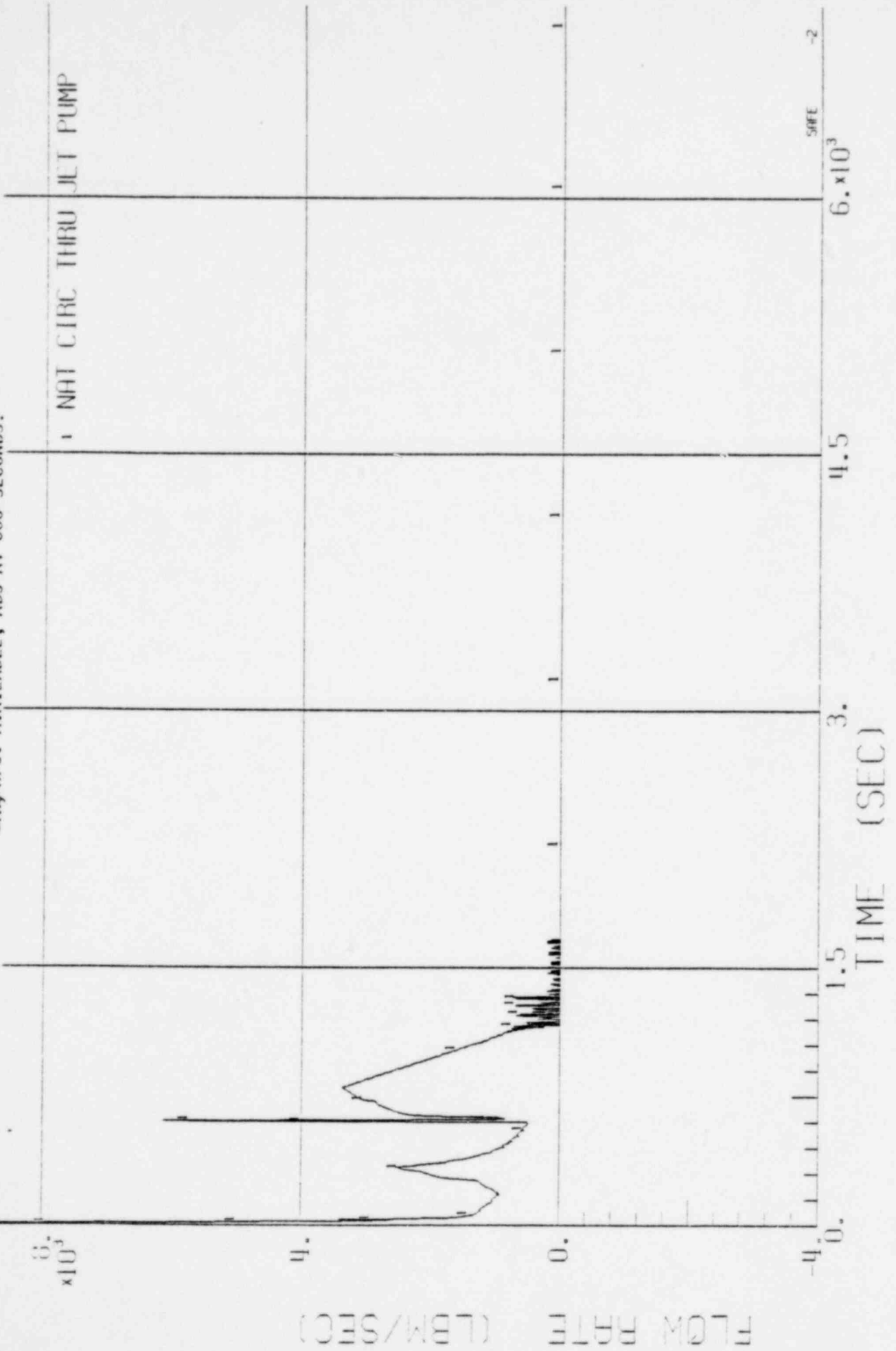
1549 276

- 1 STEAMLIN
- 2 ADS
- 3 BREAK



BWR/4-218

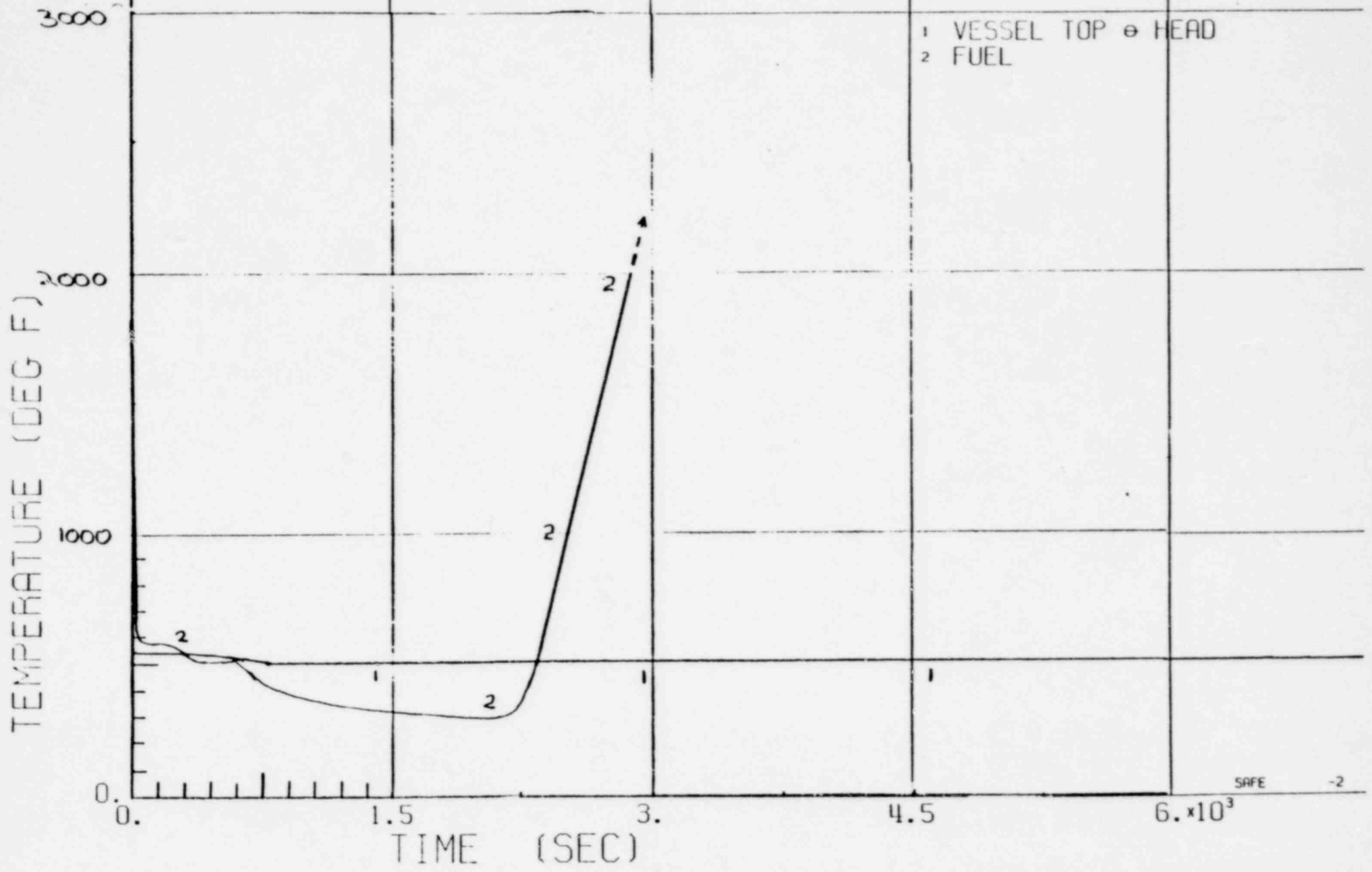
FIGURE 3.5.2.1-34.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.01 FT² SUCTION BREAK WITH ONLY IPCT AVAILABLE, ADS AT 600 SECONDS.



FLOW RATE (LBM/SEC)

1549 277

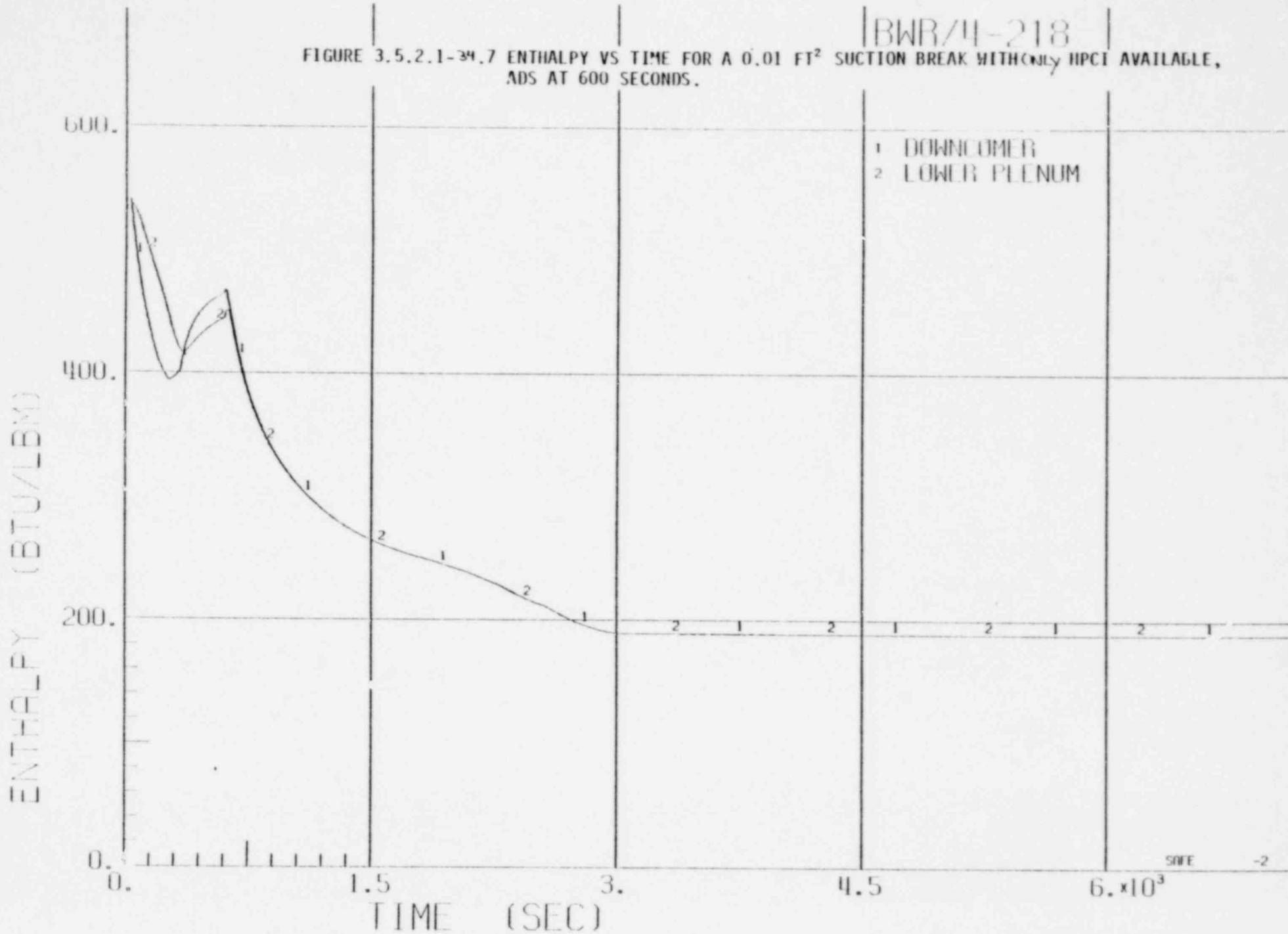
FIGURE 3.5.2.1-34.6 TEMPERATURE VS TIME FOR A 0.01 FT² SUCTION BREAK WITH ONLY HPCI AVAILABLE, ADS AT 600 SECONDS.



1549 278

BWR/4-218

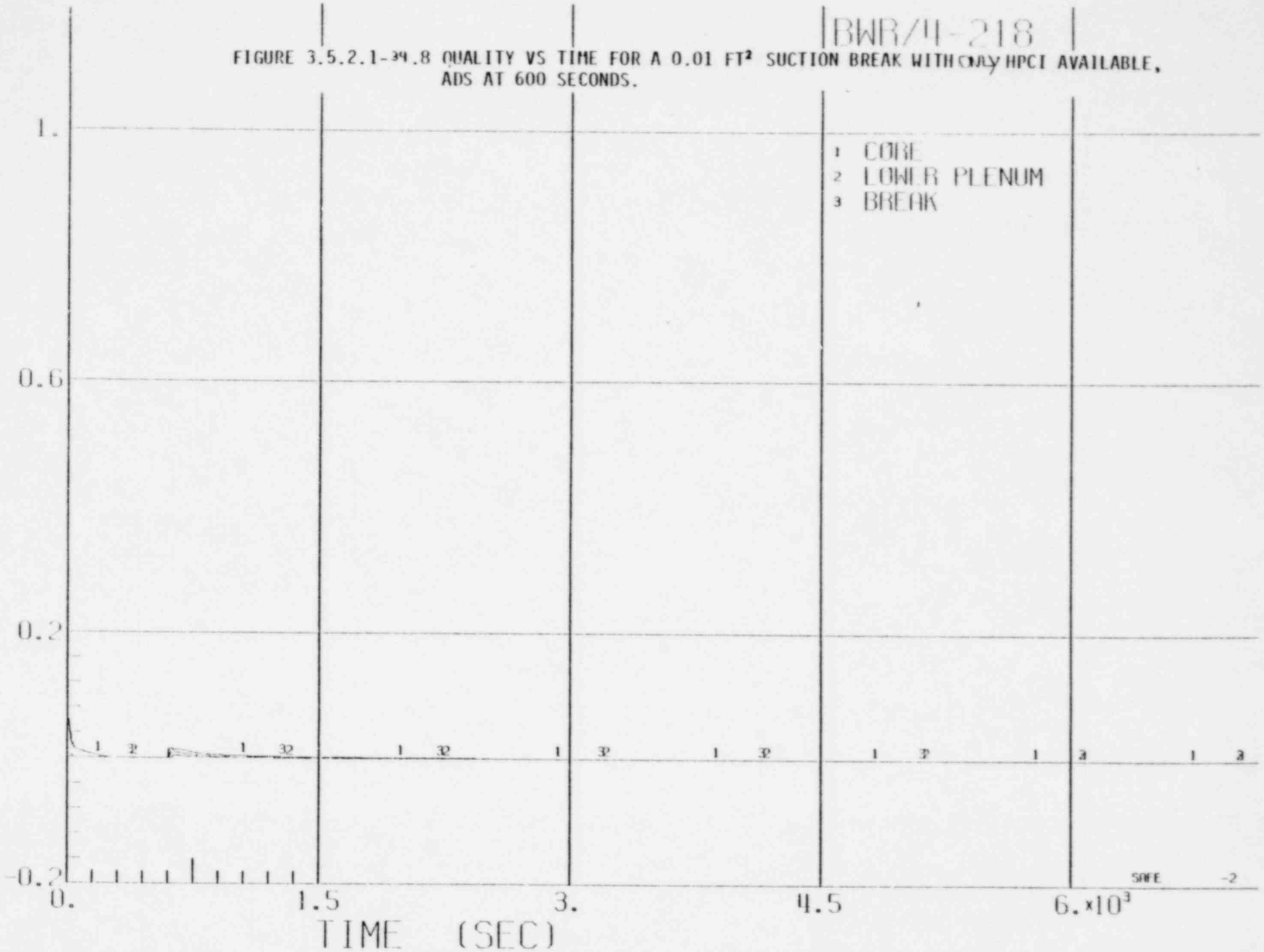
FIGURE 3.5.2.1-34.7 ENTHALPY VS TIME FOR A 0.01 FT² SUCTION BREAK WITH ONLY HPCI AVAILABLE, ADS AT 600 SECONDS.



1549 279

BWR/4-218

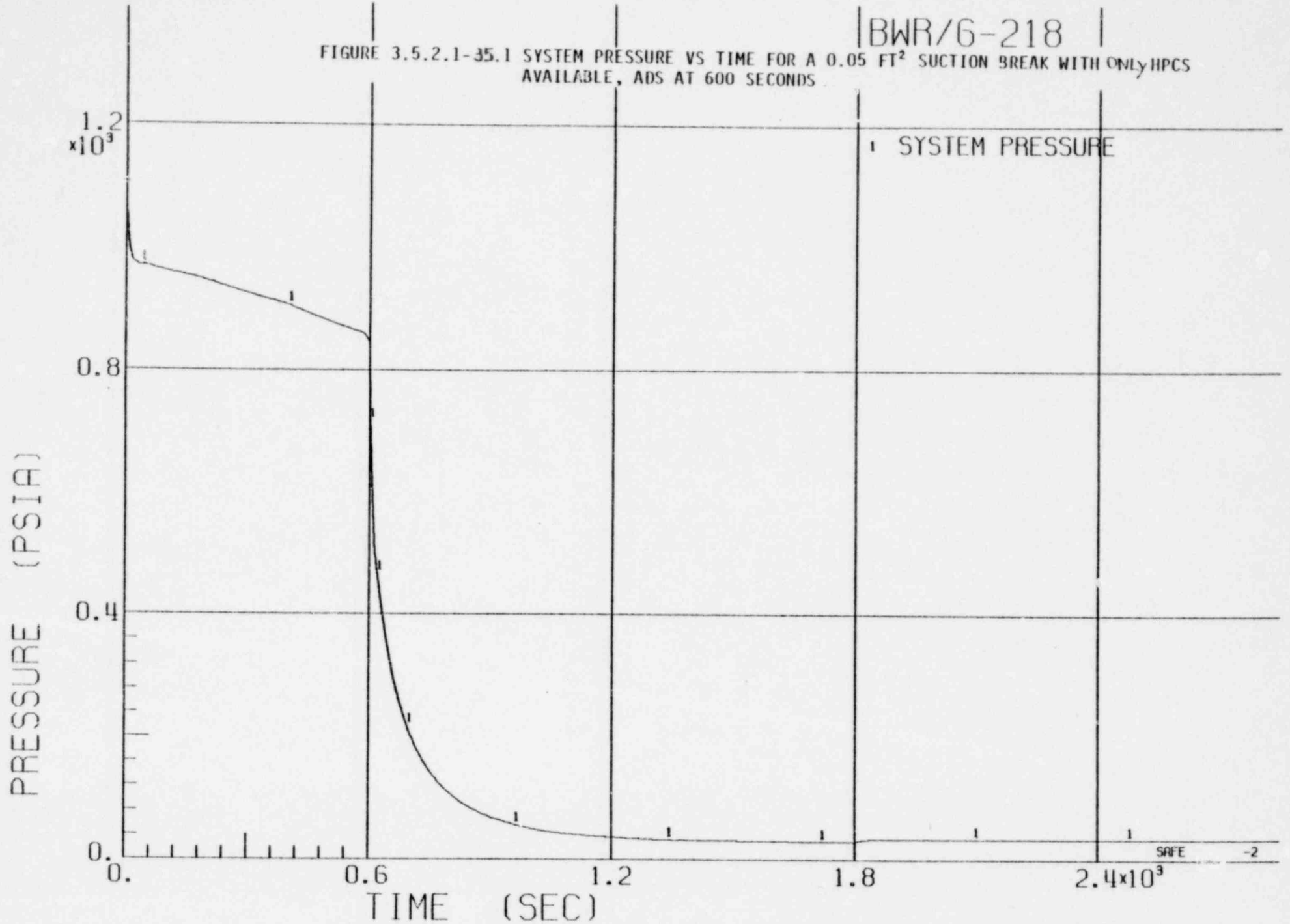
FIGURE 3.5.2.1-39.8 QUALITY VS TIME FOR A 0.01 FT² SUCTION BREAK WITH ONLY HPCI AVAILABLE,
ADS AT 600 SECONDS.



1549.280

BWR/6-218

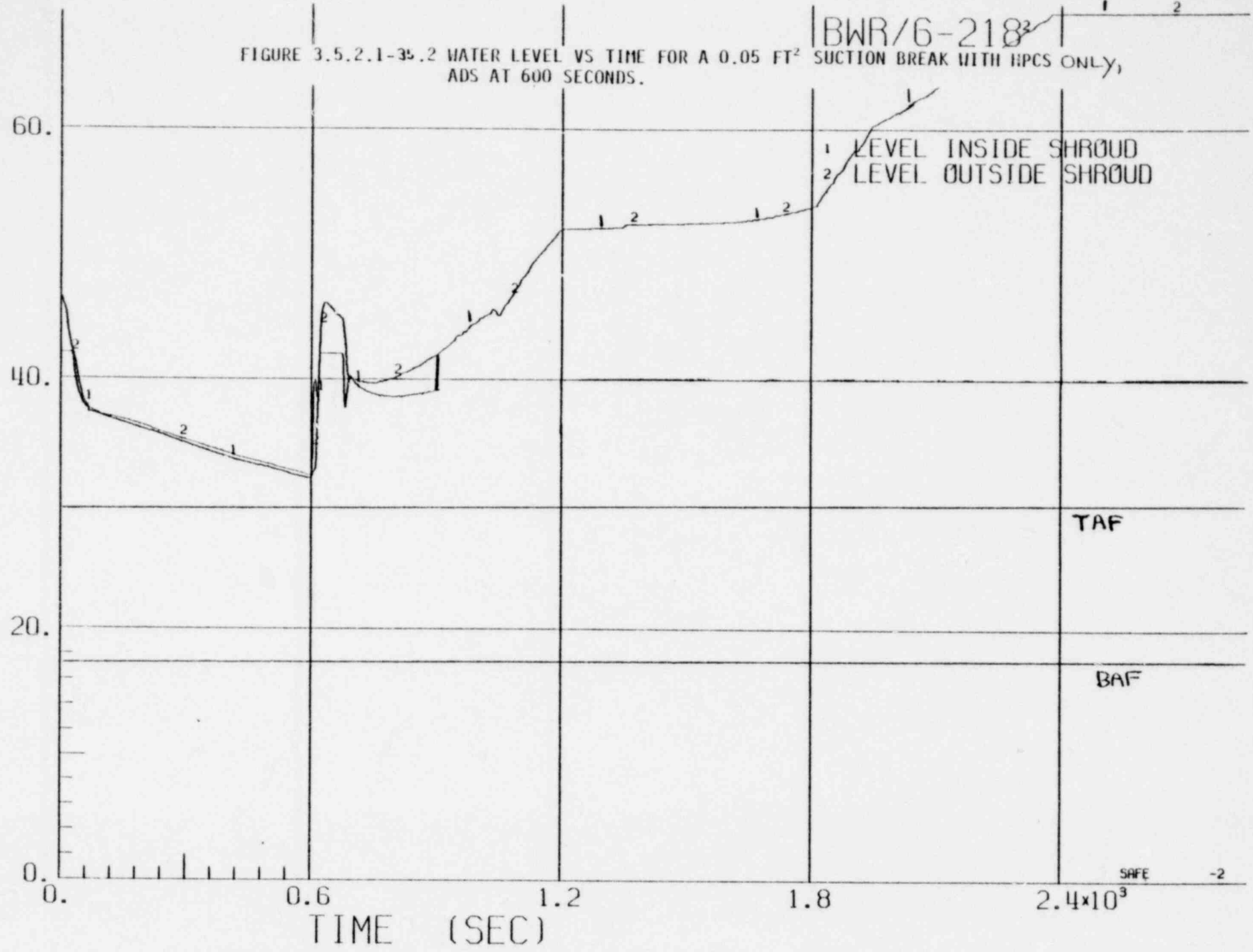
FIGURE 3.5.2.1-35.1 SYSTEM PRESSURE VS TIME FOR A 0.05 FT² SUCTION BREAK WITH ONLY HPCS AVAILABLE, ADS AT 600 SECONDS



1549 281

BWR/6-218³

FIGURE 3.5.2.1-35.2 WATER LEVEL VS TIME FOR A 0.05 FT² SUCTION BREAK WITH HPCS ONLY,
ADS AT 600 SECONDS.



WATER LEVEL (FT)
1549 282

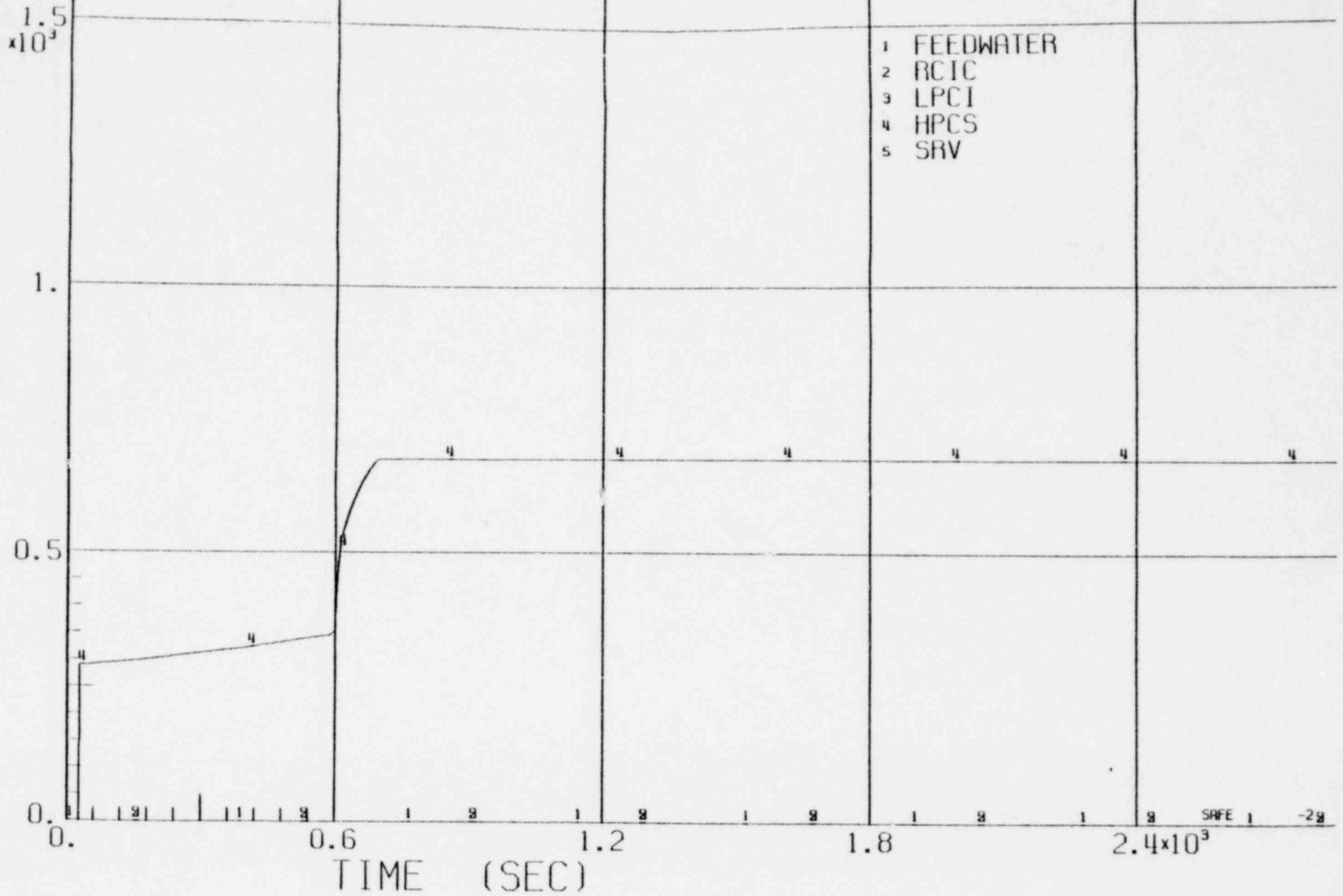
TAF

BAF

BWR/6-218

FIGURE 3.5.2.1-3.3 SYSTEM FLOW RATES VS TIME FOR A 0.05 FT² SUCTION BREAK WITH ONLY HPCS AVAILABLE, ADS AT 600 SECONDS.

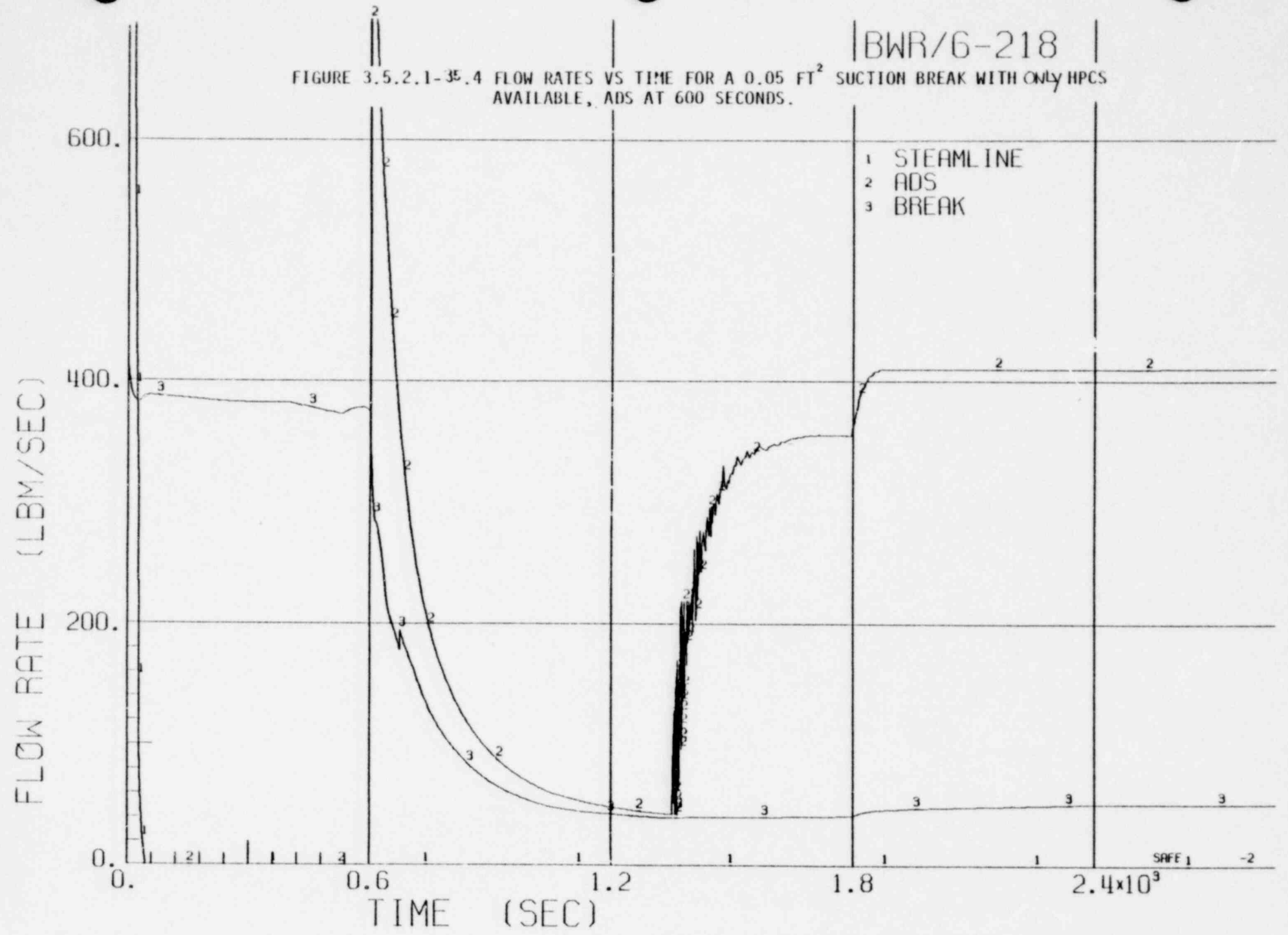
(OBS/SEC)
FLOW RATE
MOTL



1549 283

BWR/6-218

FIGURE 3.5.2.1-35.4 FLOW RATES VS TIME FOR A 0.05 FT² SUCTION BREAK WITH ONLY HPCS AVAILABLE, ADS AT 600 SECONDS.

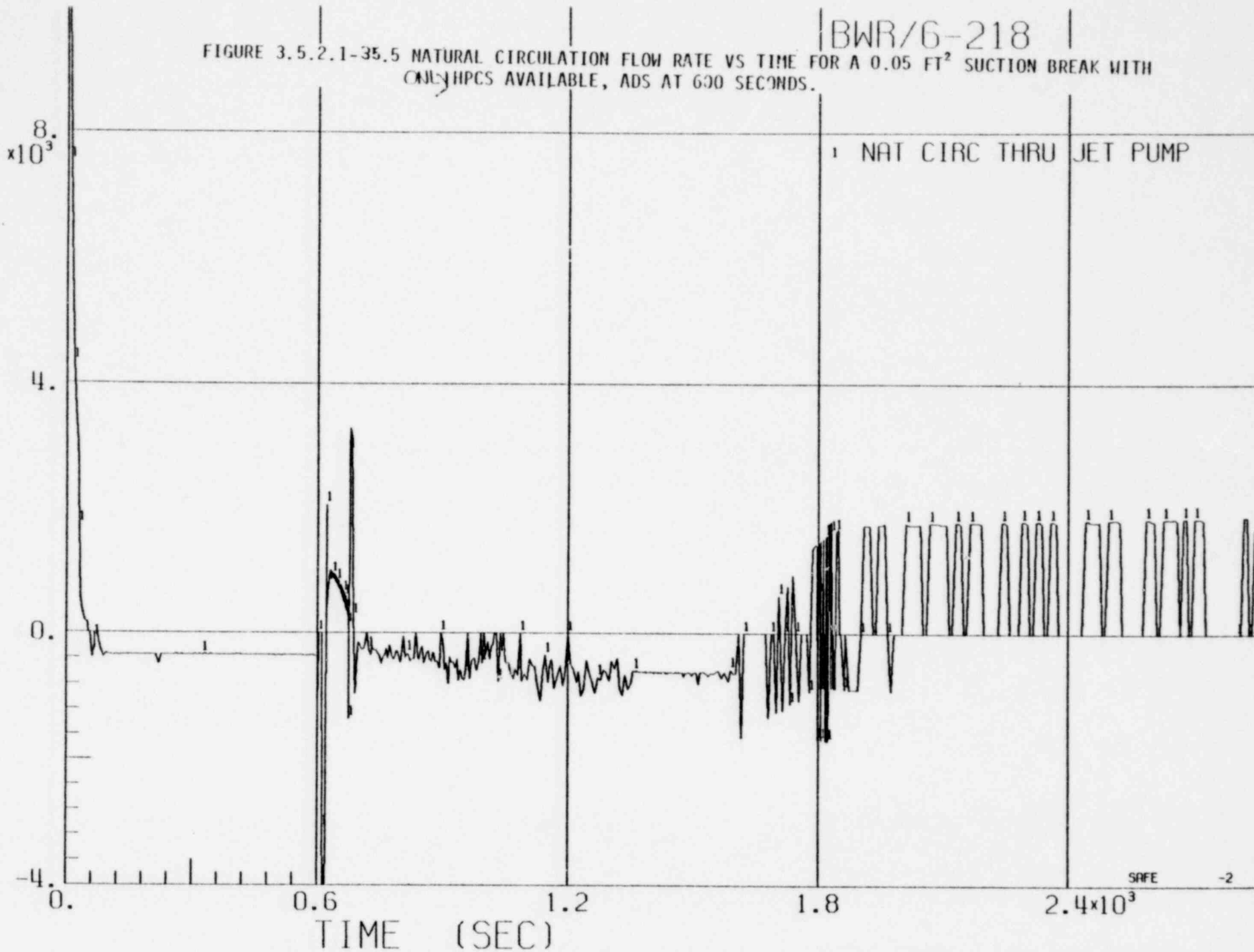


1549 284

BWR/6-218

FIGURE 3.5.2.1-35.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.05 FT² SUCTION BREAK WITH ONLY HPCS AVAILABLE, ADS AT 600 SECONDS.

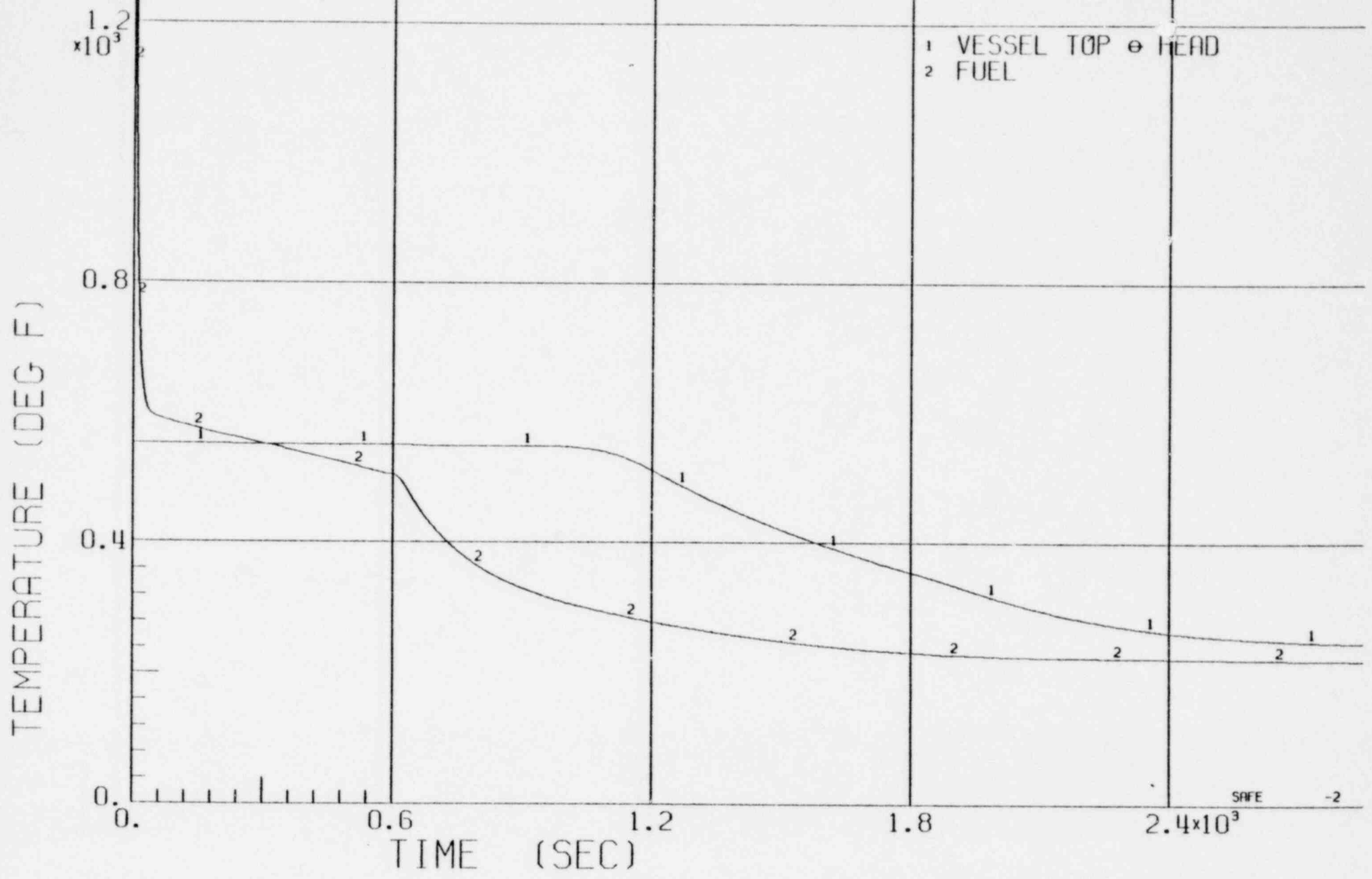
FLOW RATE (LBM/SEC)
M071



1549 285

BWR/6-218

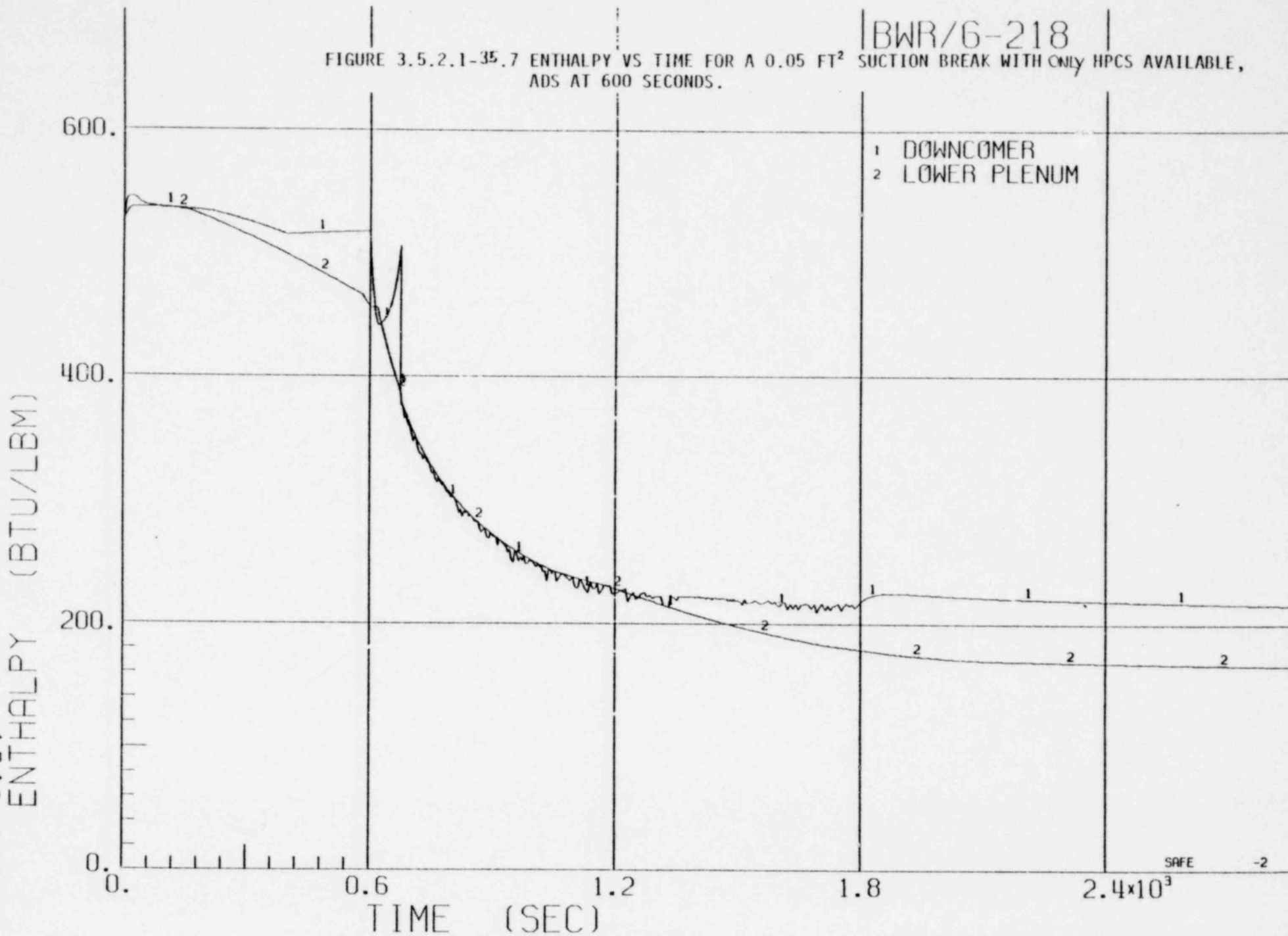
FIGURE 3.5.2.1-35.6 TEMPERATURE VS TIME FOR A 0.05 FT² SUCTION BREAK WITH ONLY HPCS AVAILABLE, ADS AT 600 SECONDS.



1549 286

BWR/6-218

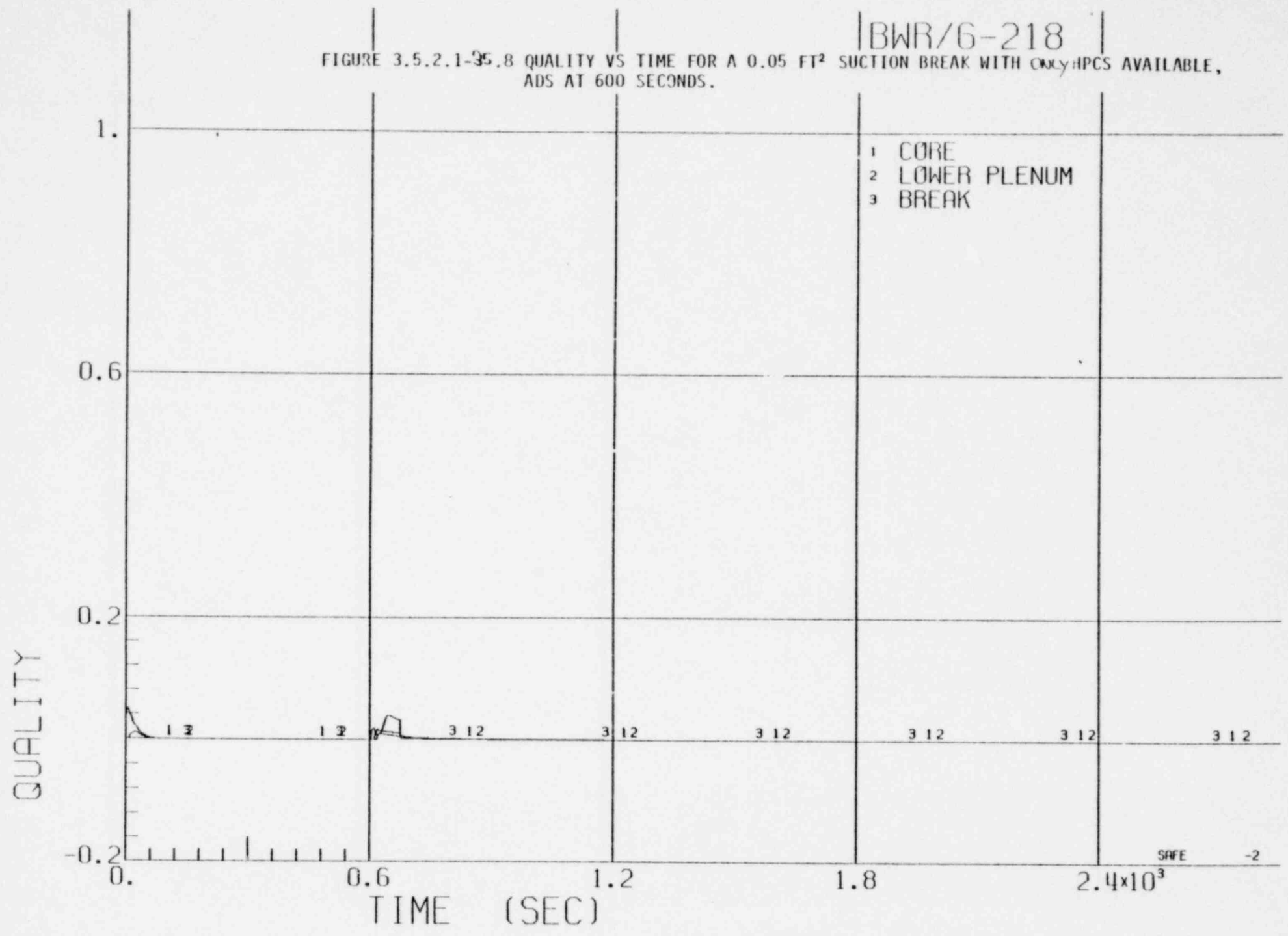
FIGURE 3.5.2.1-35.7 ENTHALPY VS TIME FOR A 0.05 FT² SUCTION BREAK WITH ONLY HPCS AVAILABLE, ADS AT 600 SECONDS.



ENTHALPY (BTU/LBM)
1549 287

BWR/6-218

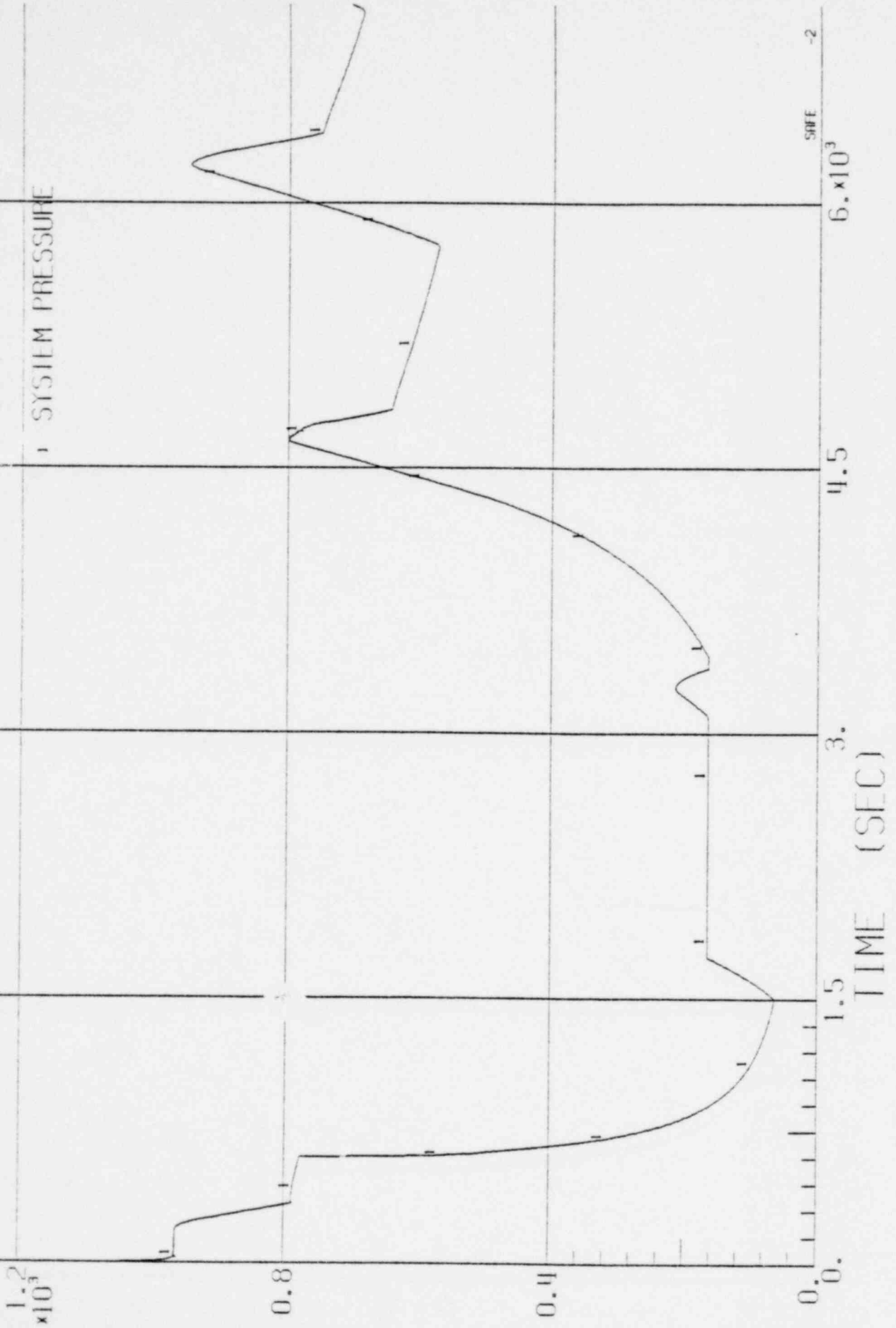
FIGURE 3.5.2.1-35.8 QUALITY VS TIME FOR A 0.05 FT² SUCTION BREAK WITH ONLY HPCS AVAILABLE, ADS AT 600 SECONDS.



1549 288

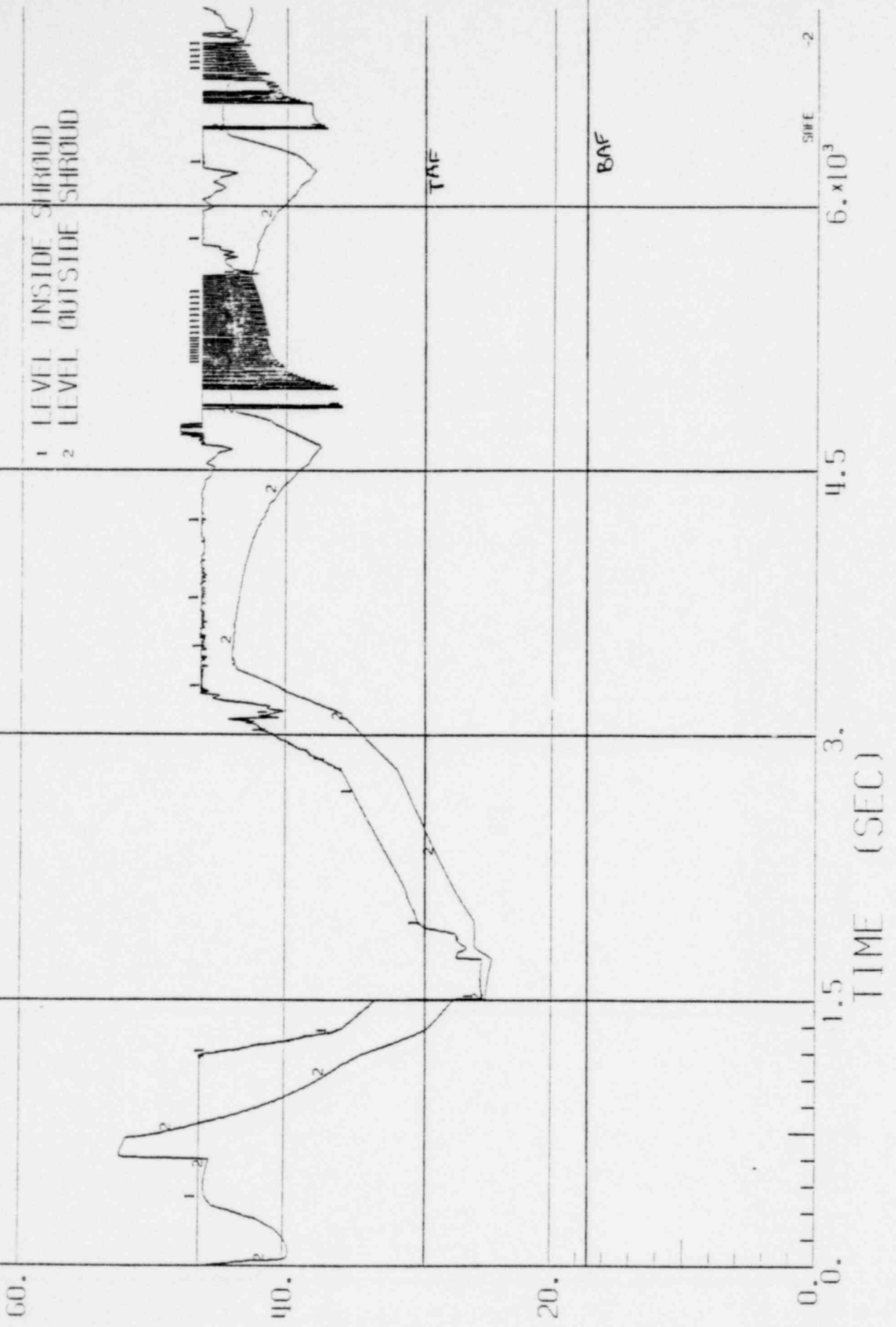
BWR/4-218

FIGURE 3.5.2.1-36.1 SYSTEM PRESSURE VS TIME FOR A 0.01 FT² SUCTION BREAK WITH ONLY HPCI AVAILABLE, ADS VALVES OPEN AT 600, CLOSE AT 1500 SECONDS



BWR/4-218

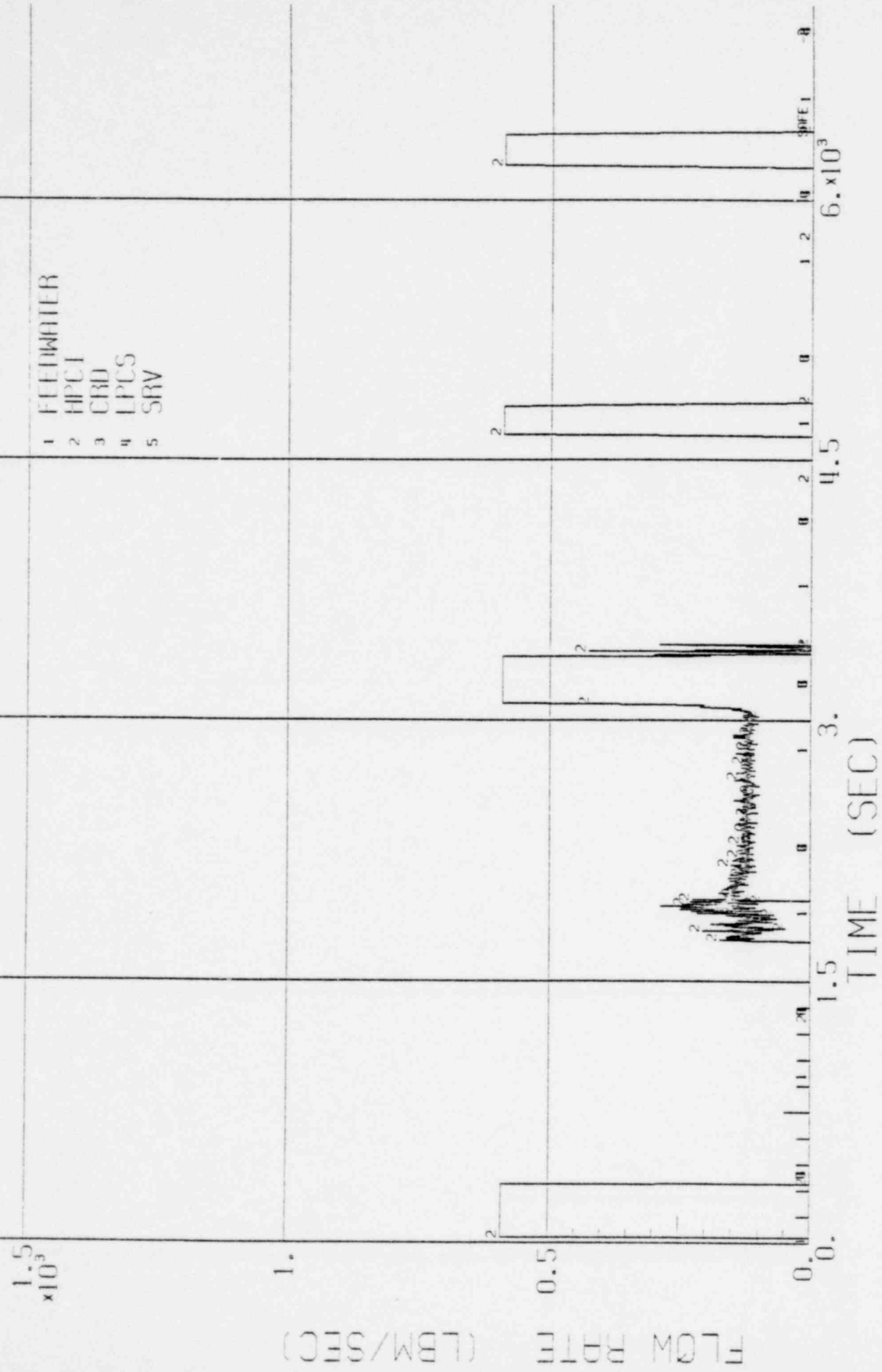
FIGURE 3.5.2.1-36.2 WATER LEVEL VS TIME FOR A 0.01 FT² SUCTION BREAK WITH ONLY HPCI AVAILABLE, ADS VALVES OPEN AT 600, CLOSE AT 1500 SECONDS.



WATER LEVEL (FT)

BWR/4-218

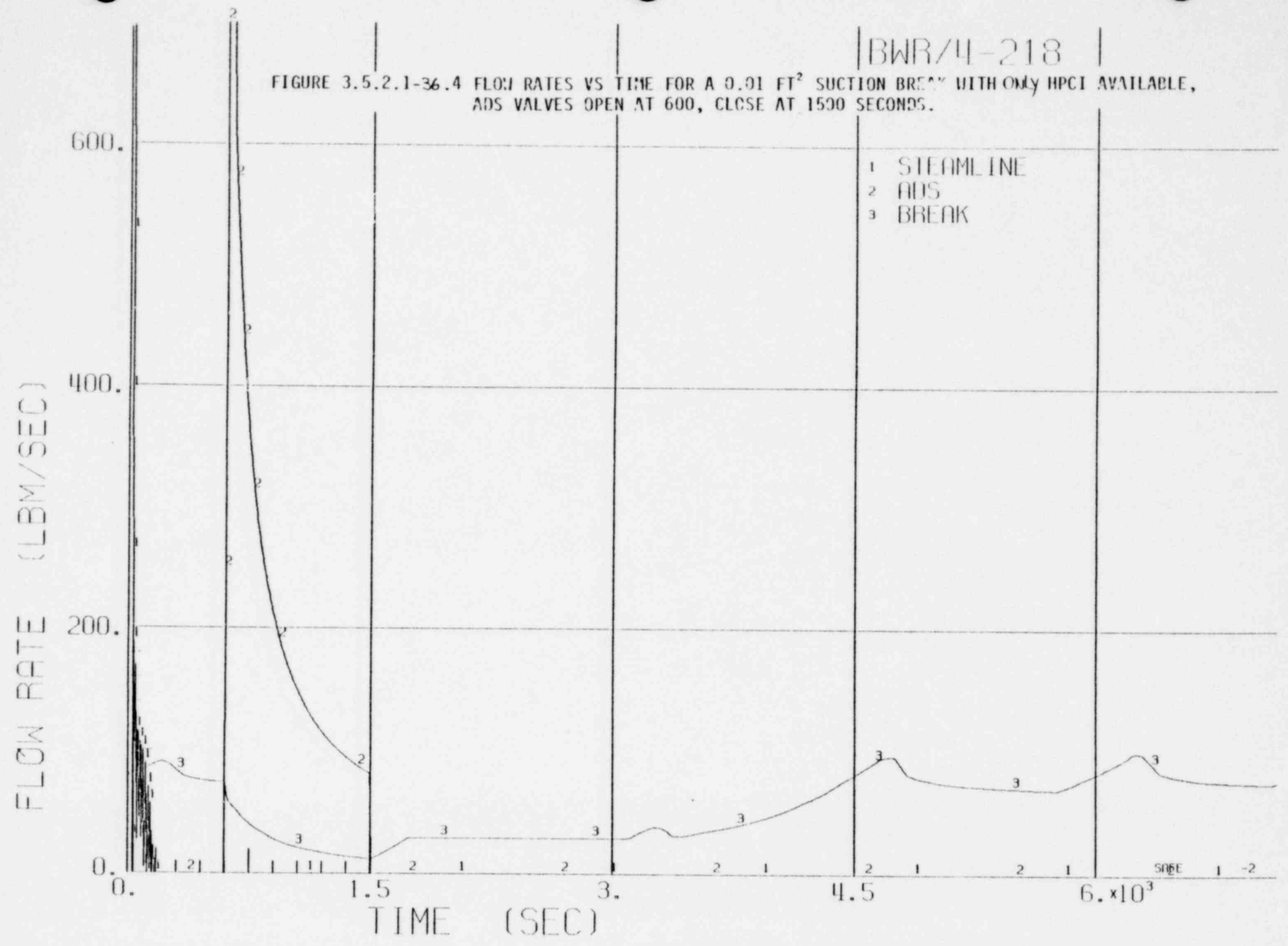
FIGURE 3.5.2.1-36.3 SYSTEM FLOW RATES VS TIME FOR A 0.01 FT² SUCTION BREAK WITH ONLY HPCI AVAILABLE, ADS VALVES OPEN AT 600, CLOSE AT 1500 SECONDS.



169 291

BWR/4-218

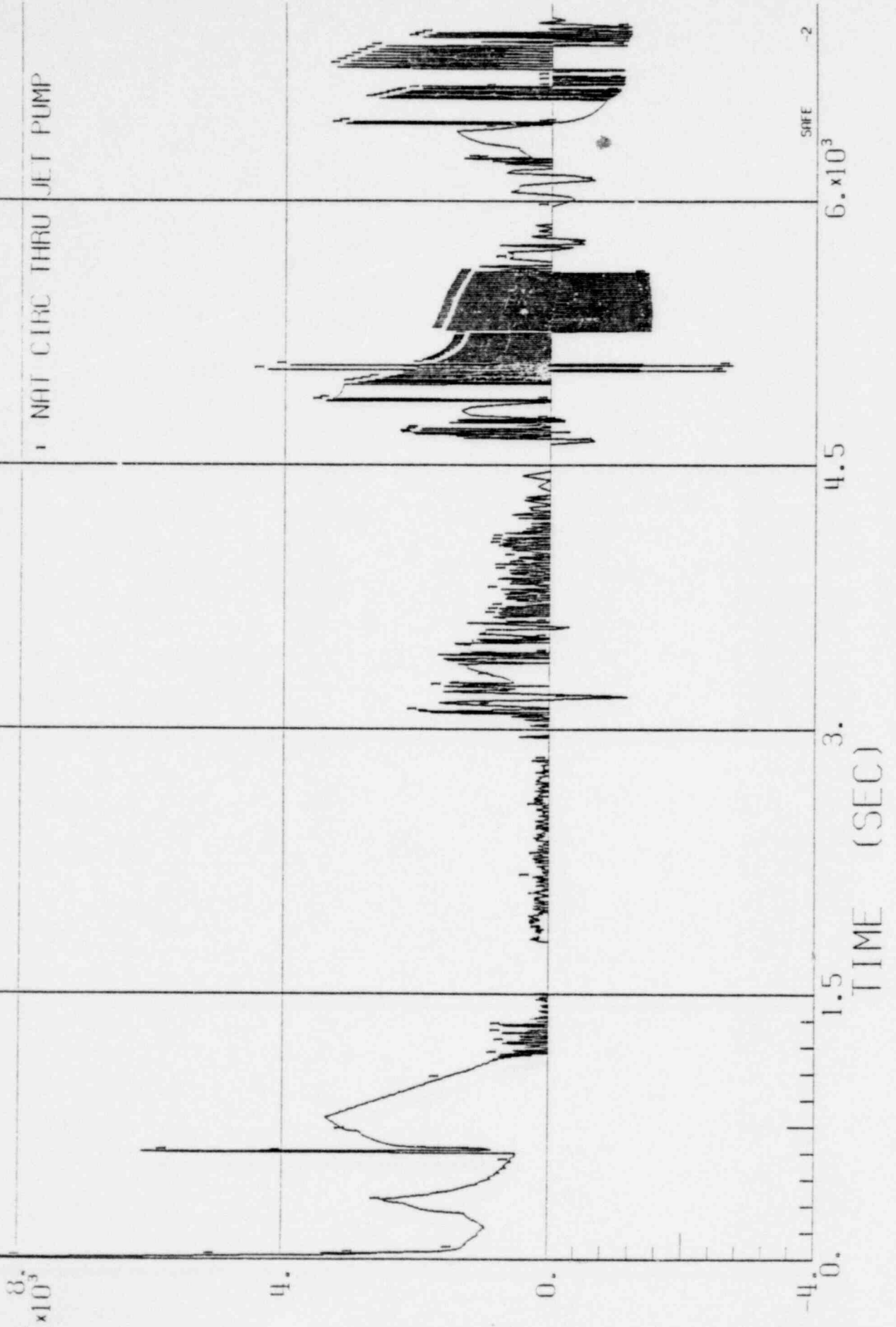
FIGURE 3.5.2.1-36.4 FLOW RATES VS TIME FOR A 0.91 FT² SUCTION BREAK WITH ONLY HPCI AVAILABLE, ADS VALVES OPEN AT 600, CLOSE AT 1500 SECONDS.



1549 297

BWR/H-218

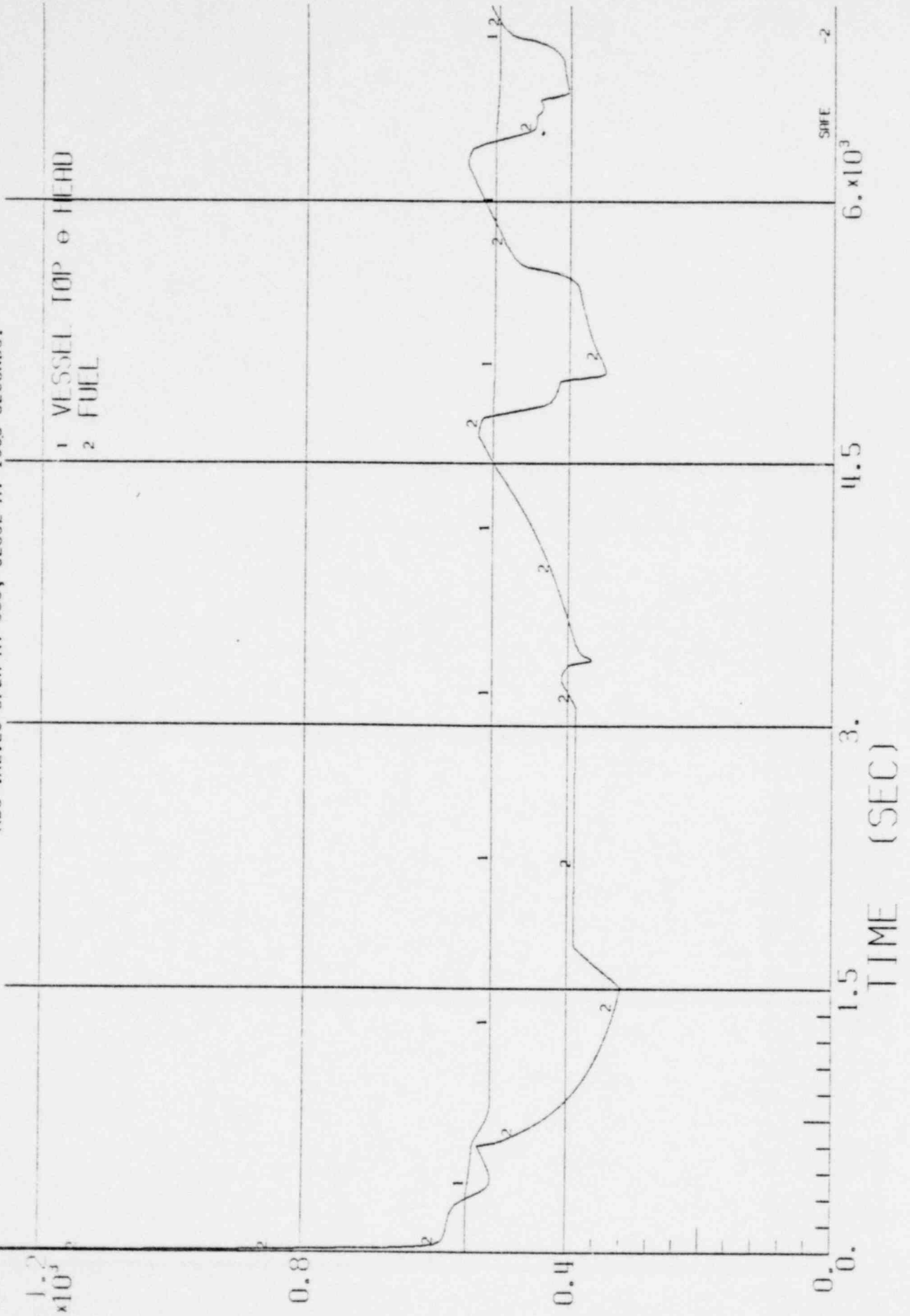
FIGURE 3.5.2.1-36.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.01 FT² SUCTION BREAK WITH
CITY HPCI AVAILABLE, ADS VALVES OPEN AT 600, CLOSE AT 1500 SECONDS.



1549 293 FLOW RATE (LBM/SEC)

BWR/4-218

FIGURE 3.5.2.1-36.6 TEMPERATURE VS TIME FOR A 0.01 FT² SUCTION BREAK WITHOUT HPCI AVAILABLE, ADS VALVES OPEN AT 600, CLOSE AT 1500 SECONDS.

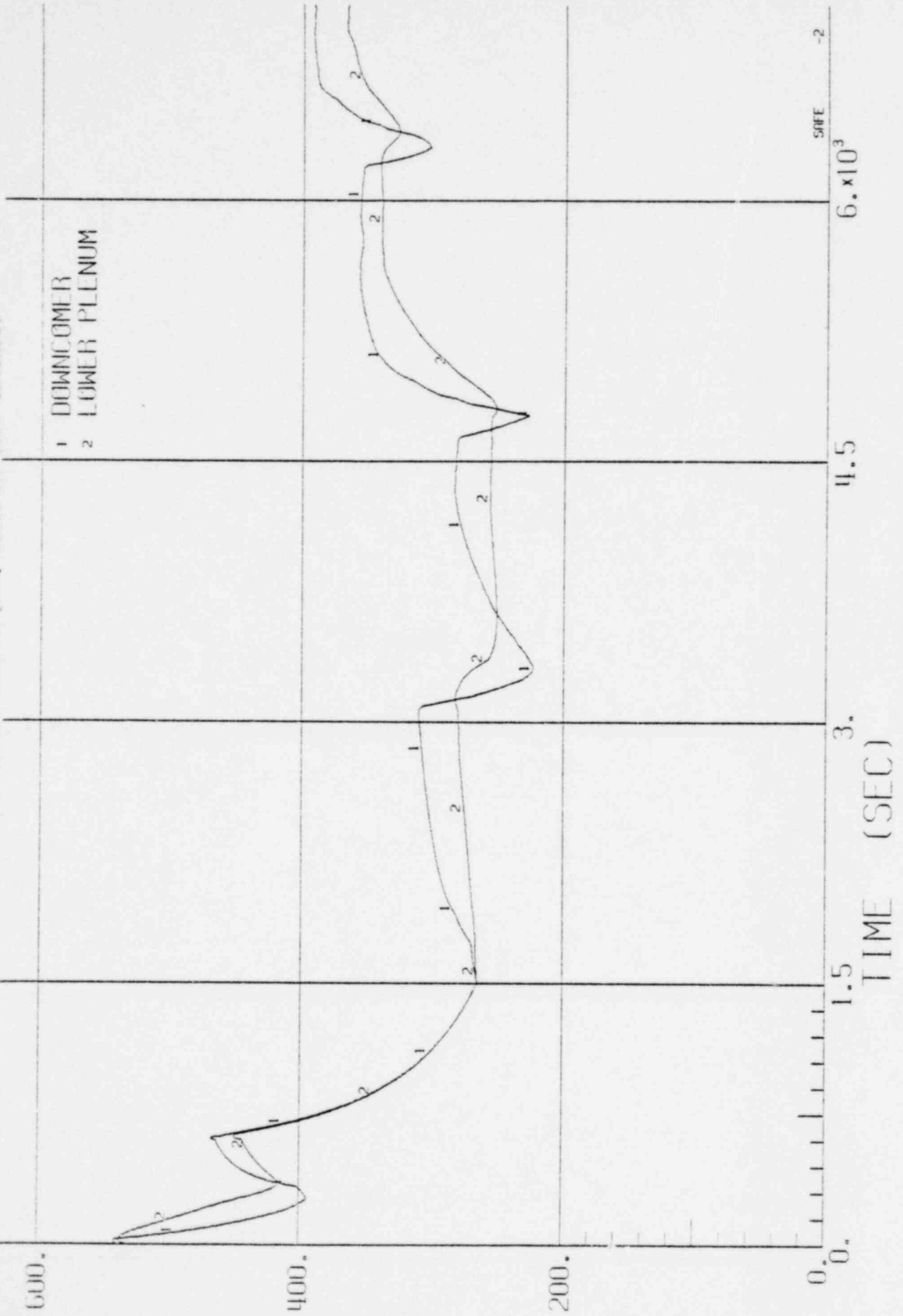


1549 294
TEMPERATURE (DEG F)

SWE -2

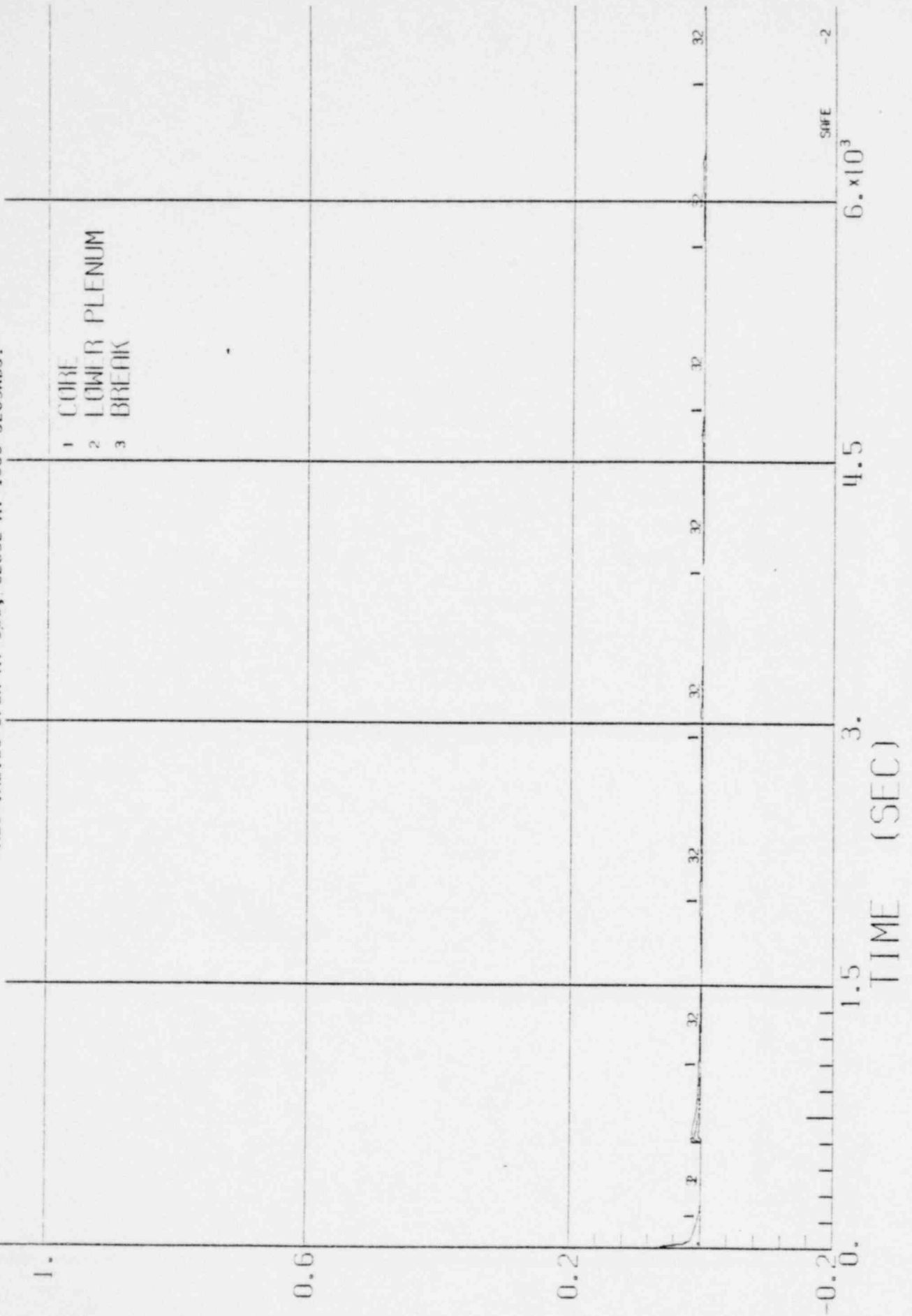
BWR/4-218

FIGURE 3.5.2.1-36.7 ENTHALPY VS TIME FOR A 0.01 FT² SUCTION BREAK WITHOUT HPCI AVAILABLE, ADS VALVES OPEN AT 500, CLOSE AT 1500 SECONDS.



BWR/4-218

FIGURE 3.5.2.1-36.8 QUALITY VS TIME FOR A 0.01 FT² SUCTION BREAK WITH ONLY HPCI AVAILABLE,
ADS VALVES OPEN AT 600, CLOSE AT 1500 SECONDS.

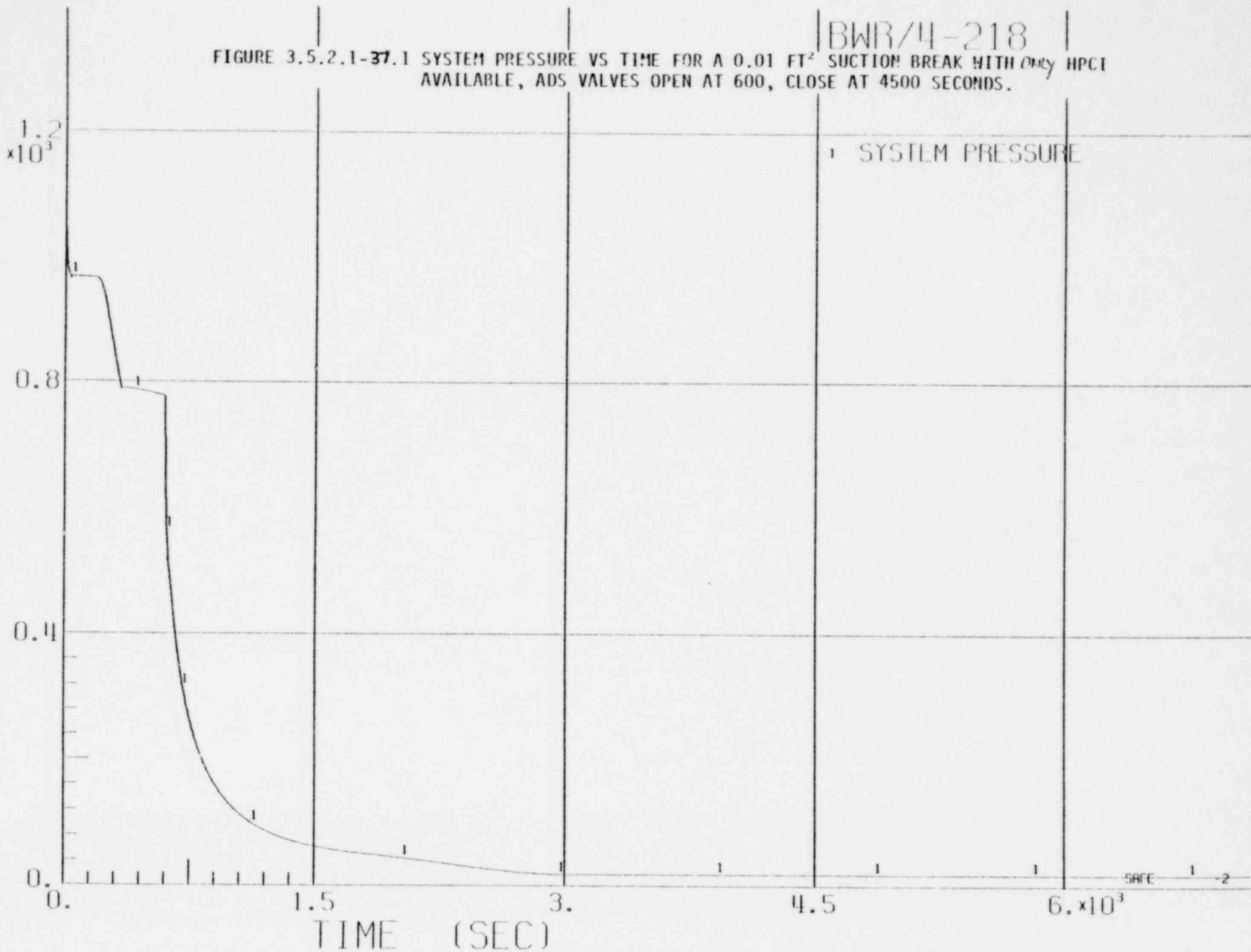


QUALITY

1549 296

BWR/4-218

FIGURE 3.5.2.1-37.1 SYSTEM PRESSURE VS TIME FOR A 0.01 FT² SUCTION BREAK WITH *only* HPCI AVAILABLE, ADS VALVES OPEN AT 600, CLOSE AT 4500 SECONDS.



1549 297
PRESSURE (PSIA)

BWR/4-218

FIGURE 3.5.2.1-37.2 WATER LEVEL VS TIME FOR A 0.02 FT² SUCTION BREAK WITHOUT HPCI AVAILABLE
ADS VALVES OPEN AT 600, CLOSE AT 4500 SECONDS.

1 LEVEL INSIDE SHROUD
2 LEVEL OUTSIDE SHROUD

60.

40.

20.

0.

WATER LEVEL (FT)

1549 298

TAF

BAF

SHE

-2

6. x 10³

4.5

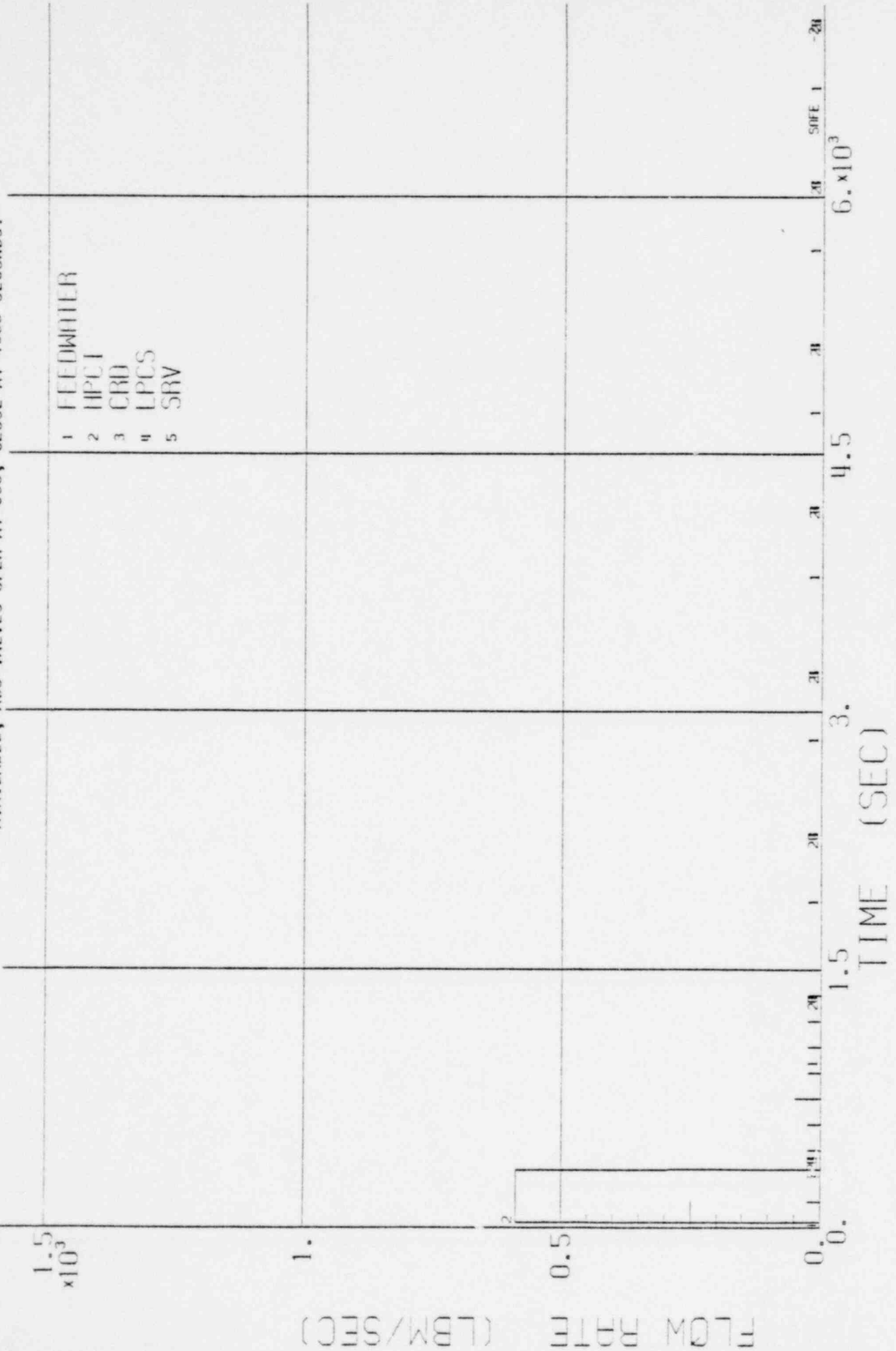
3.

1.5

TIME (SEC)

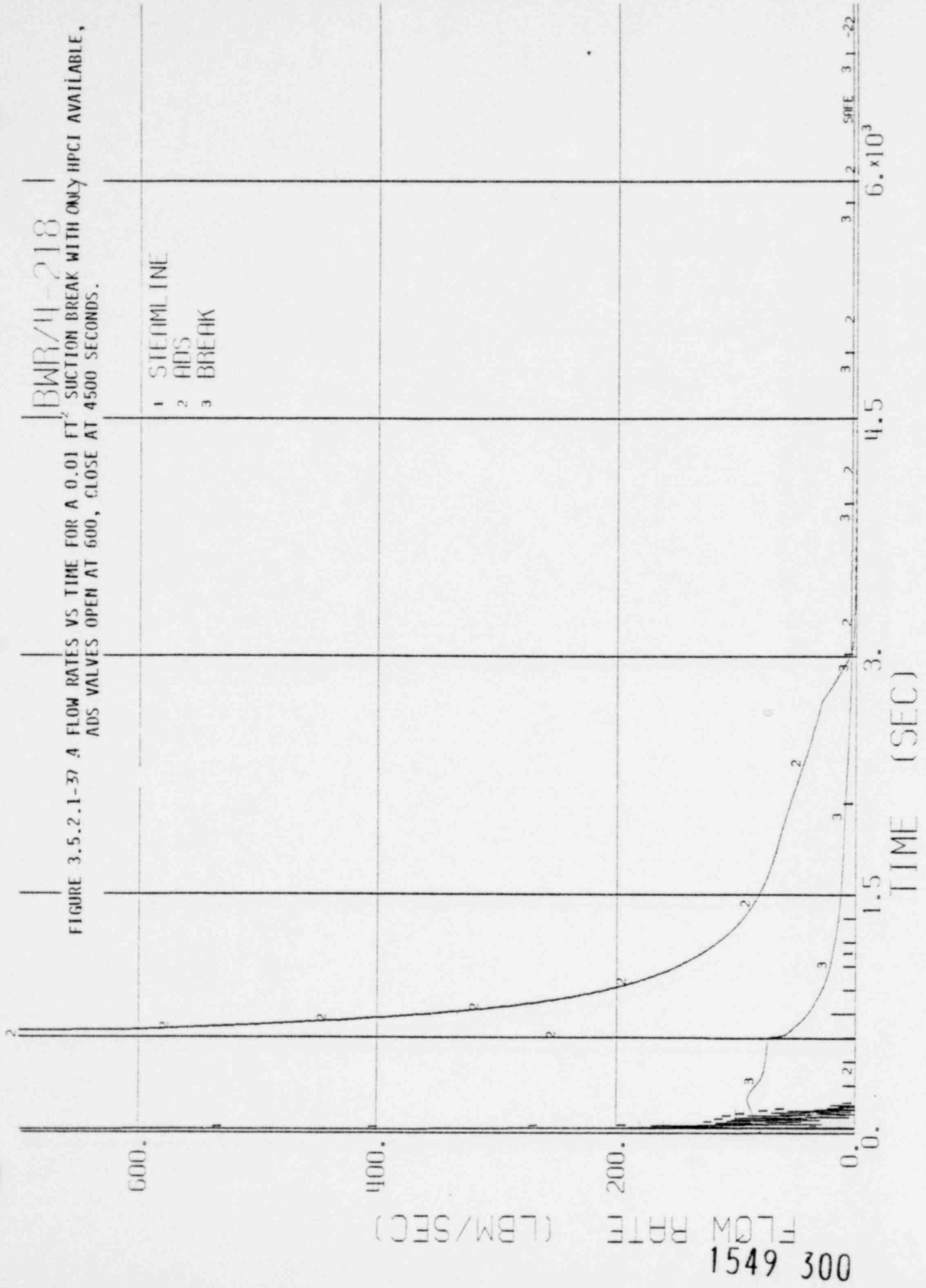
BWR/4-218

FIGURE 3.5.2.1-37.3 SYSTEM FLOW RATES VS TIME FOR A 0.01 FT² SUCTION BREAK WITH ONLY HPCI AVAILABLE, ADS VALVES OPEN AT 600, CLOSE AT 4500 SECONDS.



BWR/11-218

FIGURE 3.5.2.1-37 A FLOW RATES VS TIME FOR A 0.01 FT² SUCTION BREAK WITH ONLY HPCI AVAILABLE, ADS VALVES OPEN AT 600, CLOSE AT 4500 SECONDS.



BWR/4-218

FIGURE 3.5.2.1-37.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A 0.01 FT² SUCTION BREAK WITH ONLY HPCI AVAILABLE, ADS VALVES OPEN AT 600, CLOSE AT 4500 SECONDS.

1 NAT CIRC THRU JET PUMP

8.
x10³

FLOW RATE (LBM/SEC)

-4.
0.

1.5 3.
TIME (SEC)

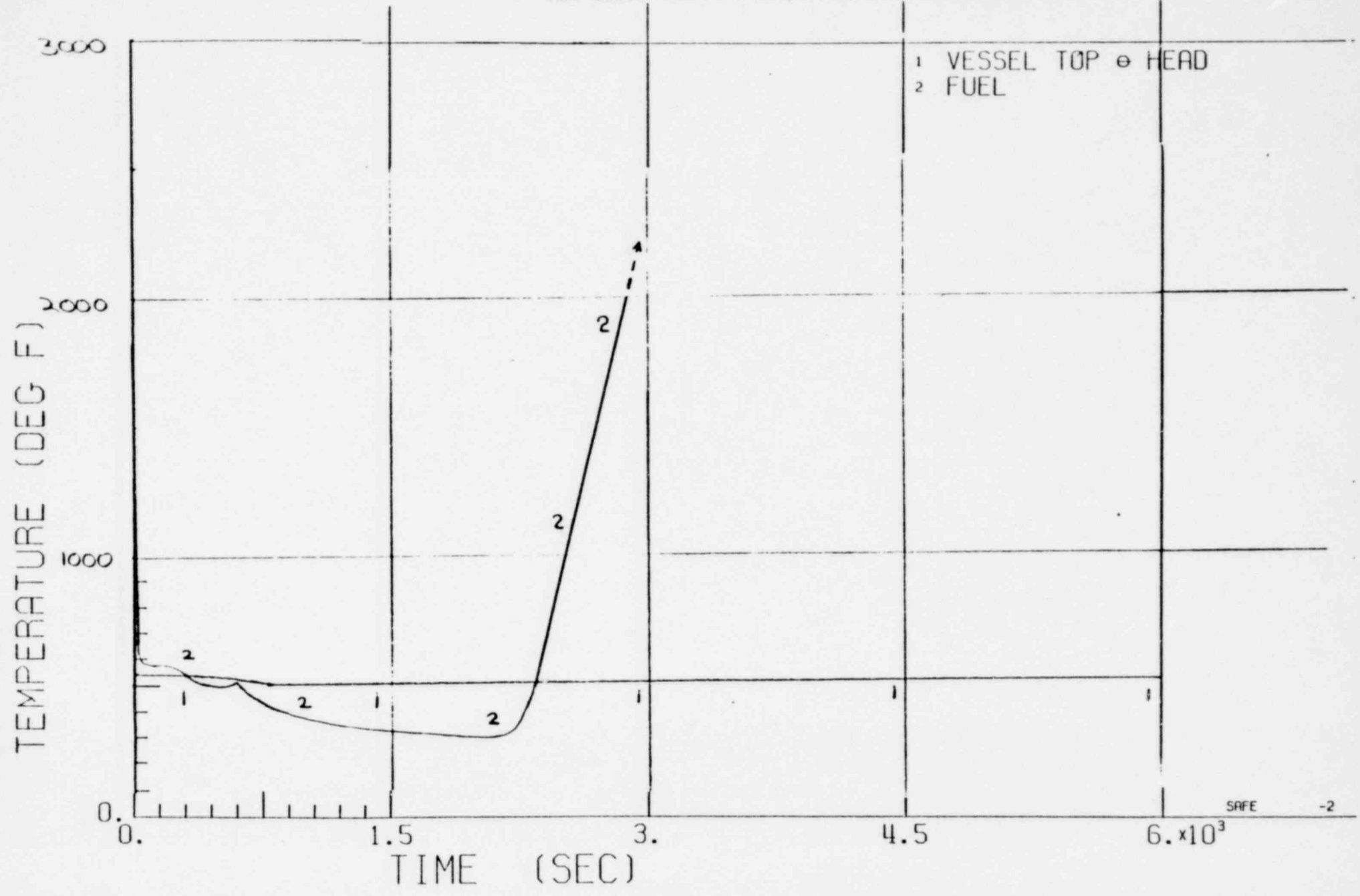
4.5

6. x10³

SAFE -2

BWR/4-218

FIGURE 3.5.2.1-37.6 TEMPERATURE VS TIME FOR A 0.01 FT² SUCTION BREAK WITH ONLY HPCI AVAILABLE, ADS VALVES OPEN AT 600, CLOSE AT 4500 SECONDS.

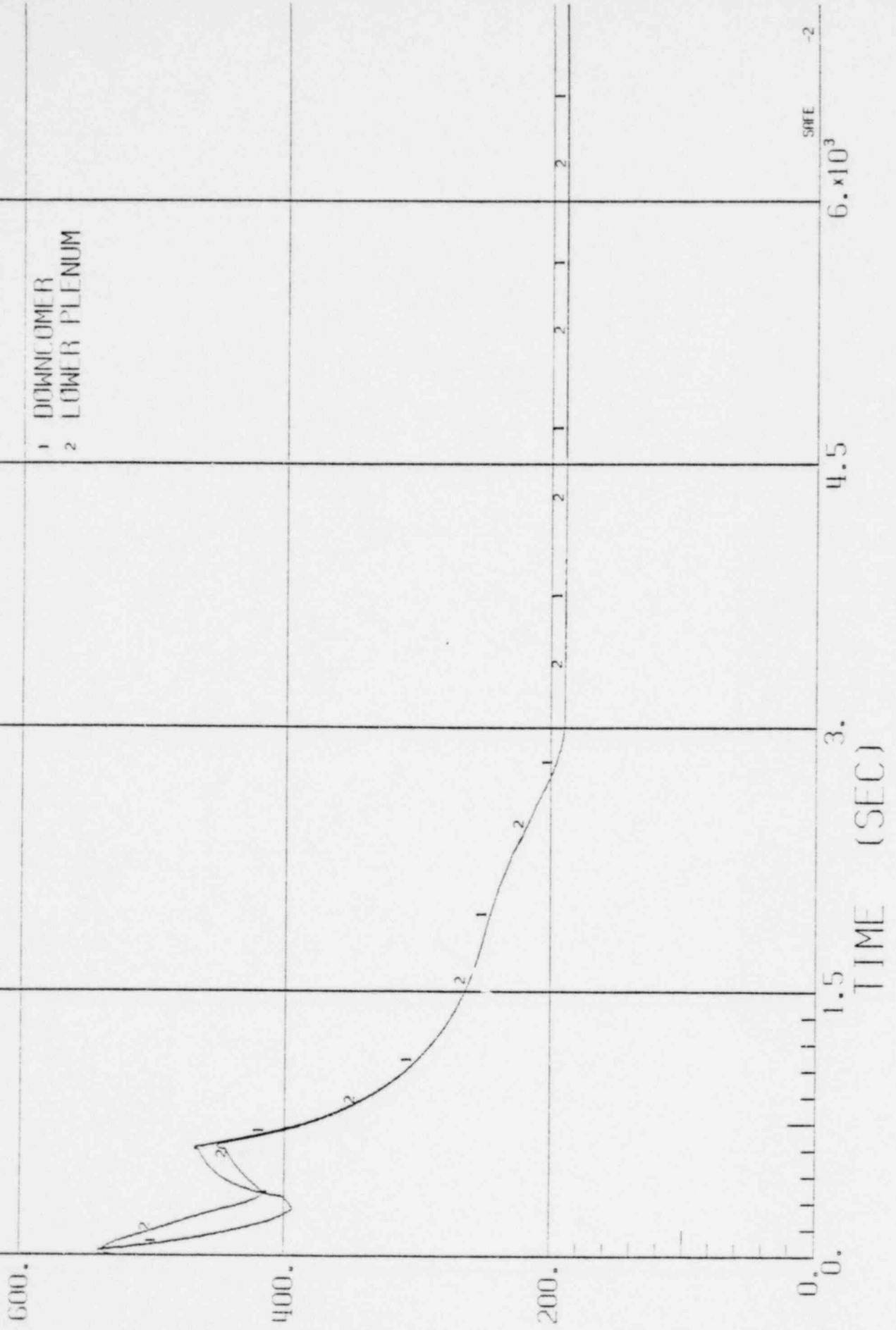


1549 302

BWR/4-218

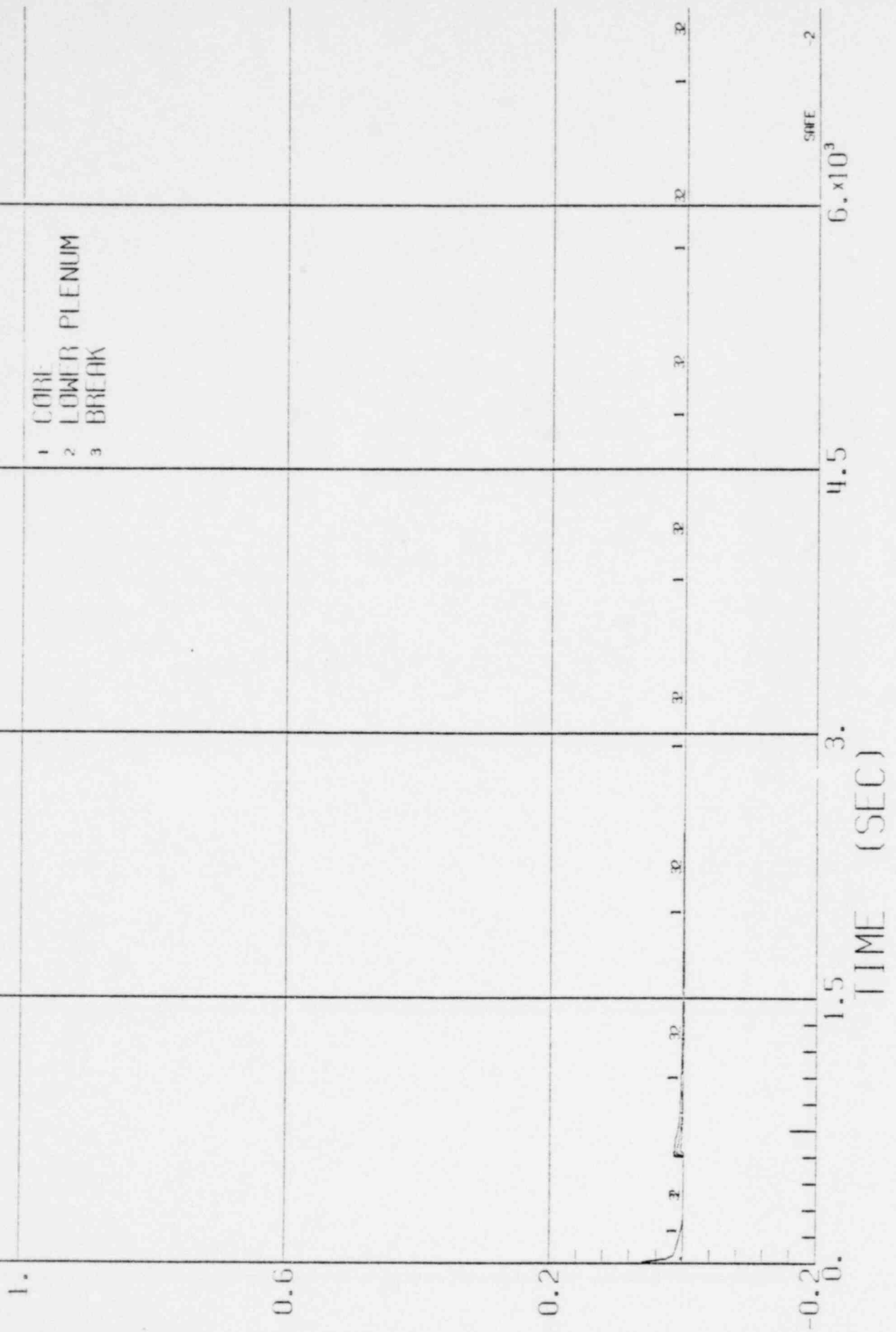
FIGURE 3.5.2.1-57.7 ENTHALPY VS TIME FOR A 0.01 FT² SUCTION BREAK WITH ONLY HPCI AVAILABLE, ADS VALVES OPEN AT 600, CLOSE AT 4500 SECONDS.

- 1 DOWNCOMER
- 2 LOWER PLENUM



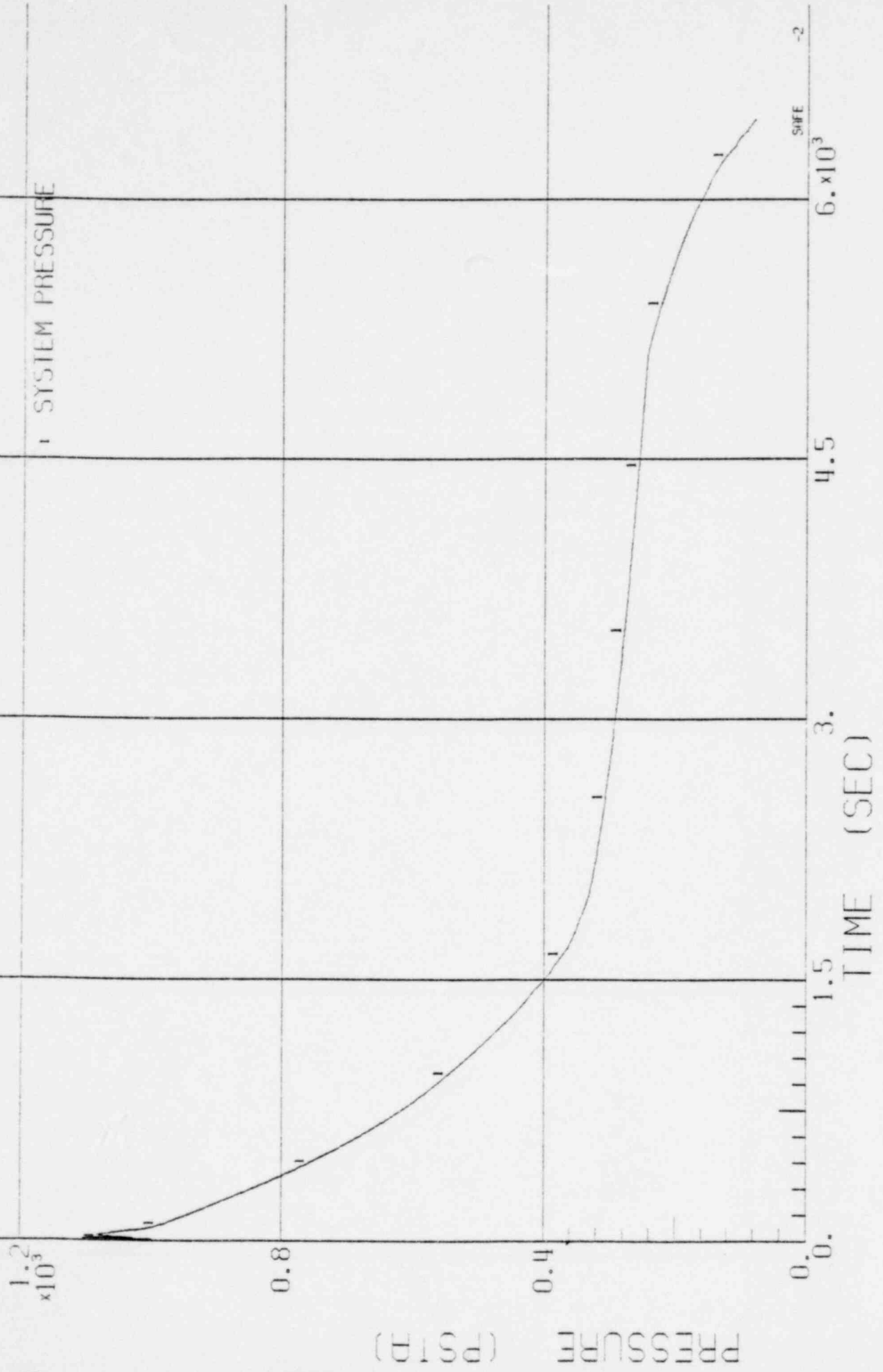
BWR/4-218

FIGURE 3.5.2.1-37.3 QUALITY VS TIME FOR A 0.01 FT² SUCTION BREAK WITH CORE IPCI AVAILABLE, ADS VALVES OPEN AT 600, CLOSE AT 4500 SECONDS.



QUALITY
1549 304

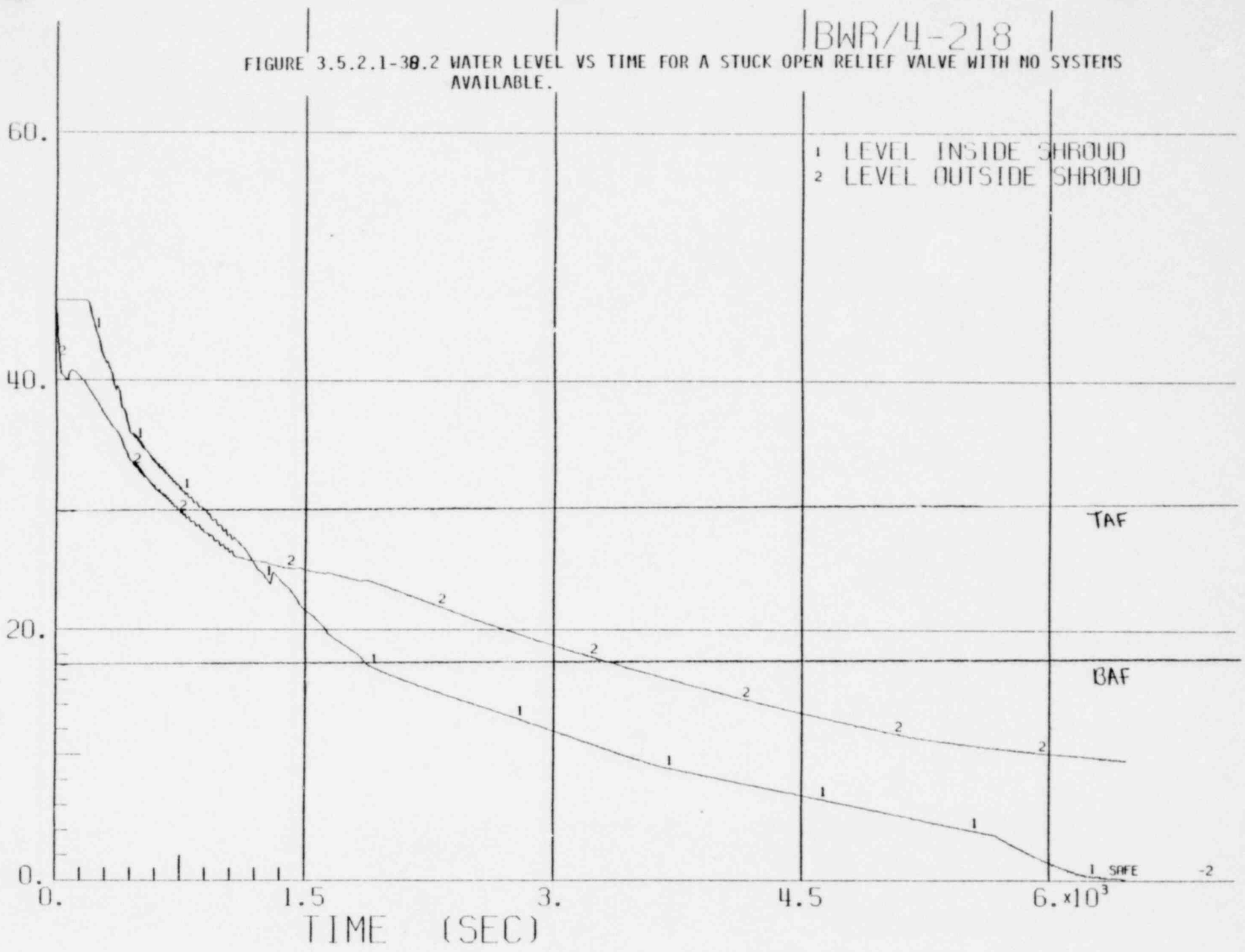
BWR/4-218
 FIGURE 3.5.2.1-30.1 SYSTEM PRESSURE VS TIME FOR A STUCK OPEN RELIEF VALVE WITH NO SYSTEMS AVAILABLE.



BWR/4-218

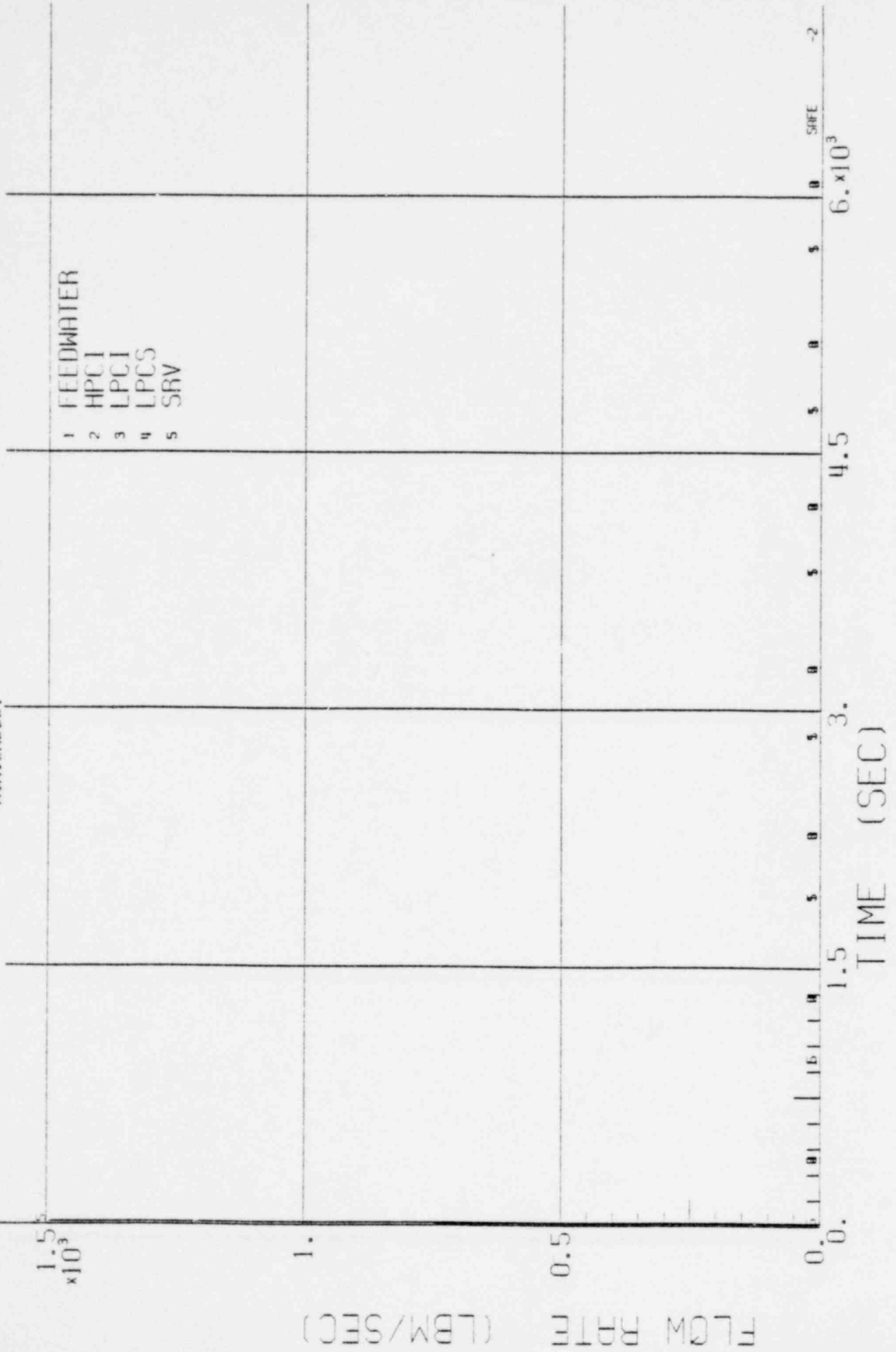
FIGURE 3.5.2.1-30.2 WATER LEVEL VS TIME FOR A STUCK OPEN RELIEF VALVE WITH NO SYSTEMS AVAILABLE.

1549 306
WATER LEVEL (FT)



BWR/4-218

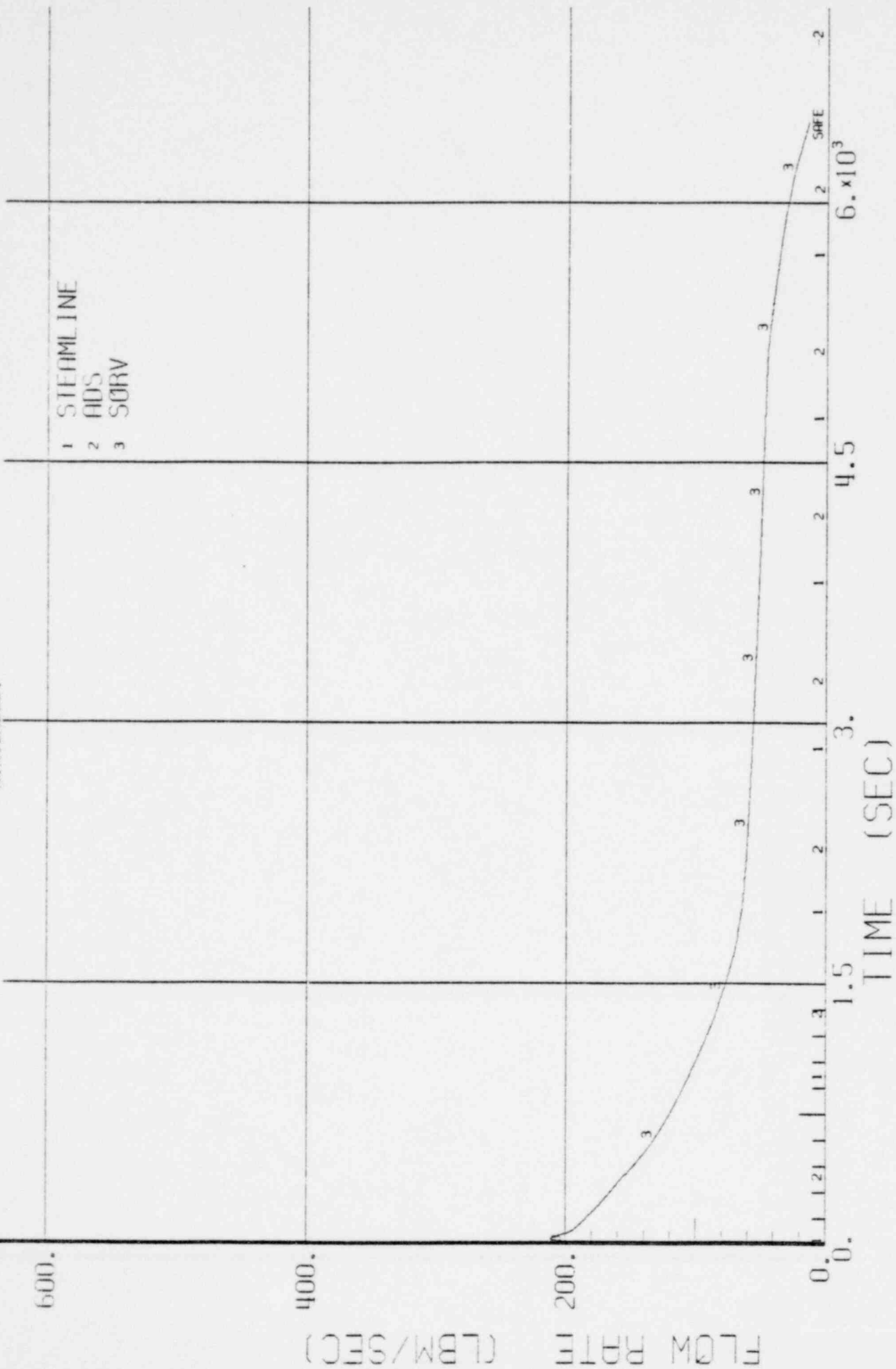
FIGURE 3.5.2.1-30.3 SYSTEM FLOW RATES VS TIME FOR A STUCK OPEN RELIEF VALVE WITH NO SYSTEMS AVAILABLE.



1549 307

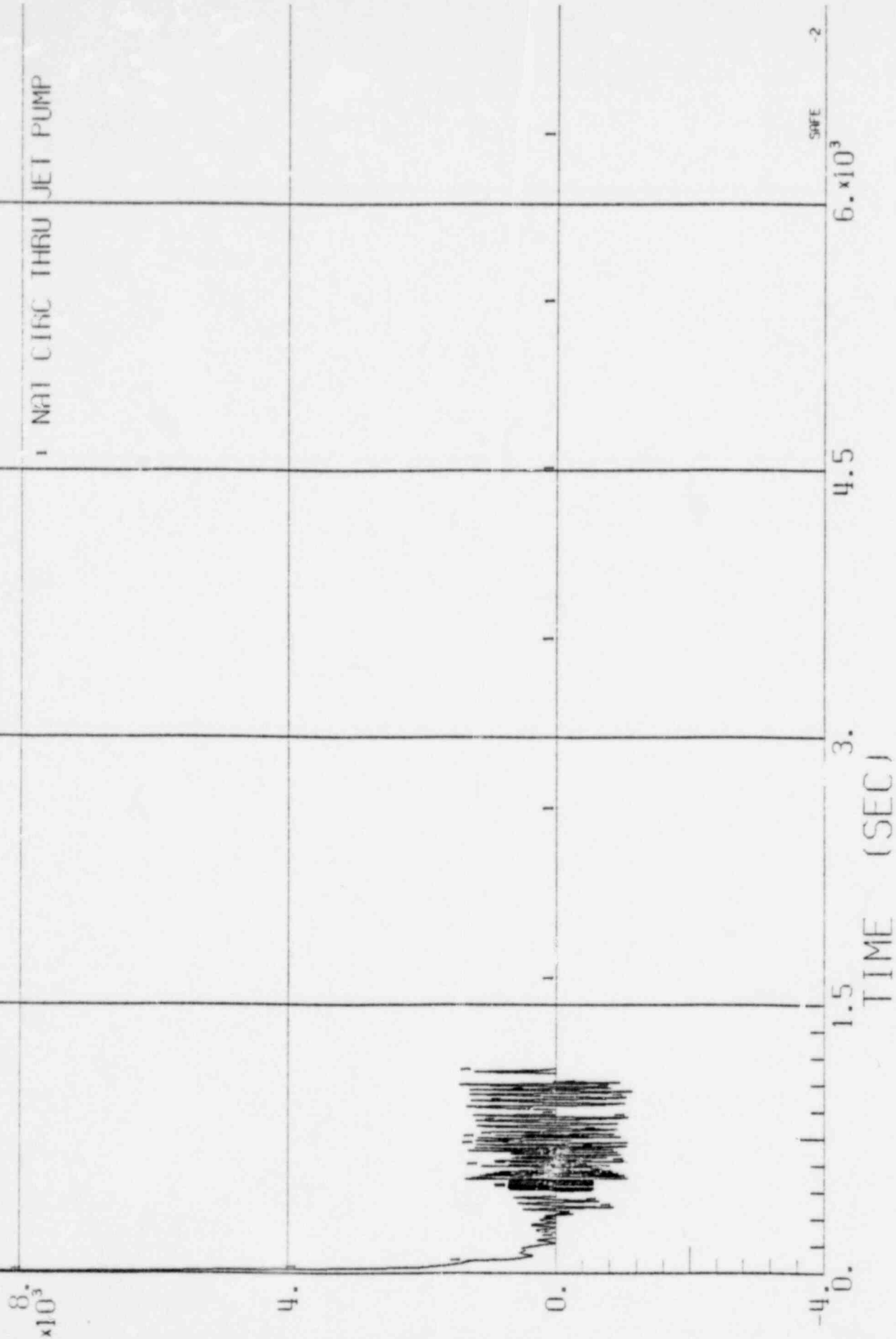
BWR/4-218

FIGURE 3.5.2.1-38.4 FLOW RATES VS TIME FOR A STUCK OPEN RELIEF VALVE WITH NO SYSTEMS AVAILABLE.



BWR/4-218

FIGURE 3.5.2.1-38.5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A STUCK OPEN RELIEF VALVE WITH NO SYSTEMS AVAILABLE.



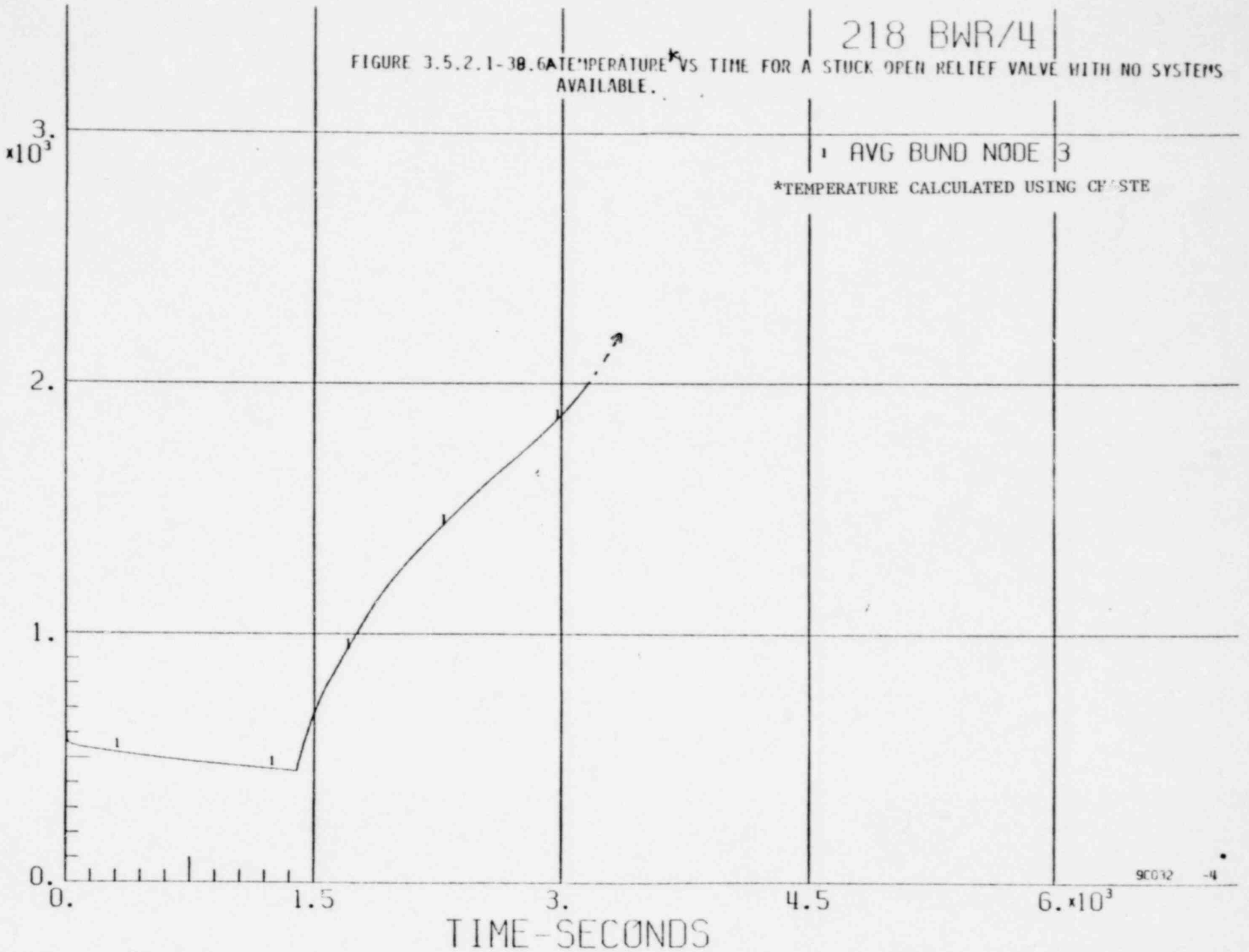
FLOW RATE (LBM/SEC)

1549 309

SWFE -2

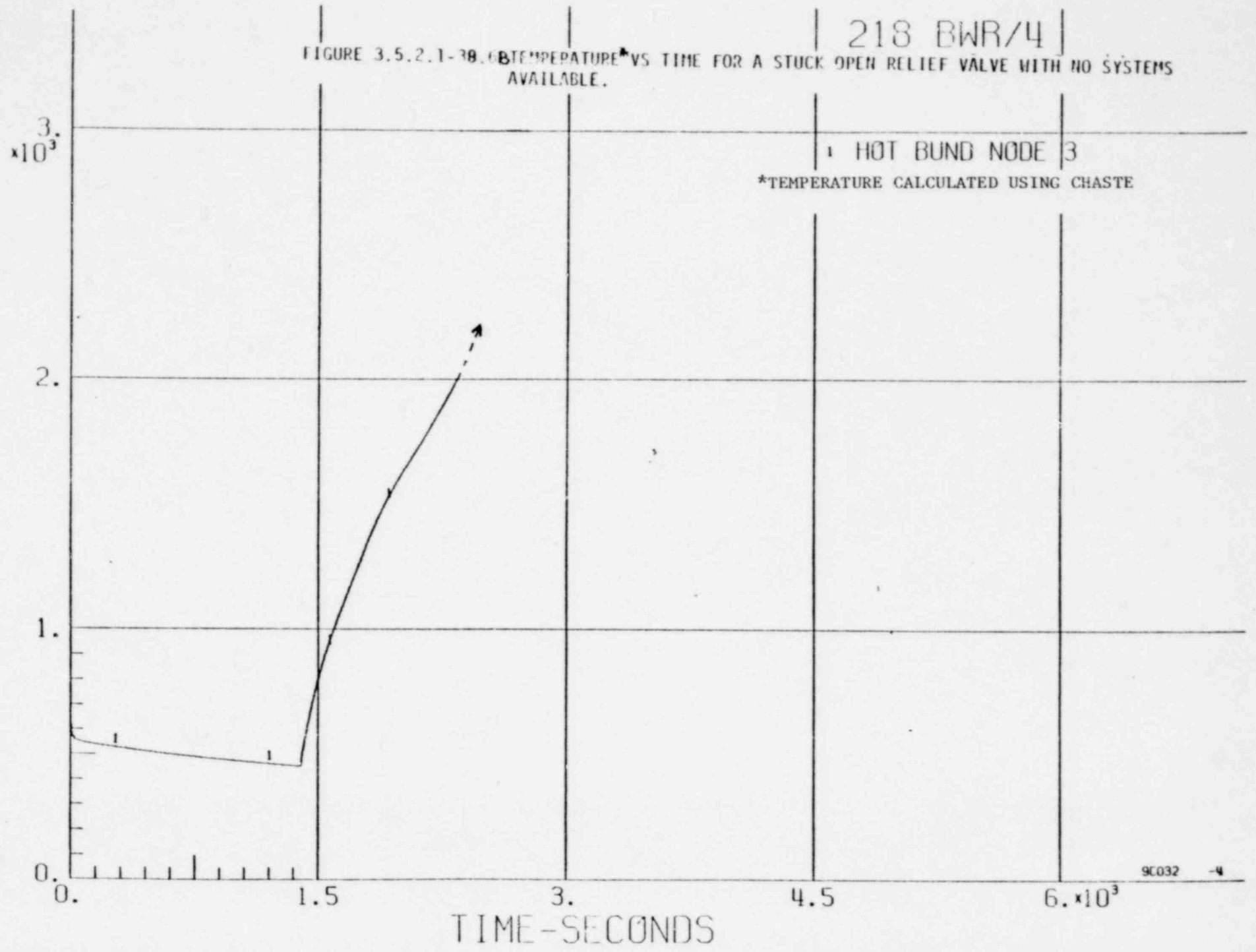
1549 310

PEAK CLAD TEMP - DEG F



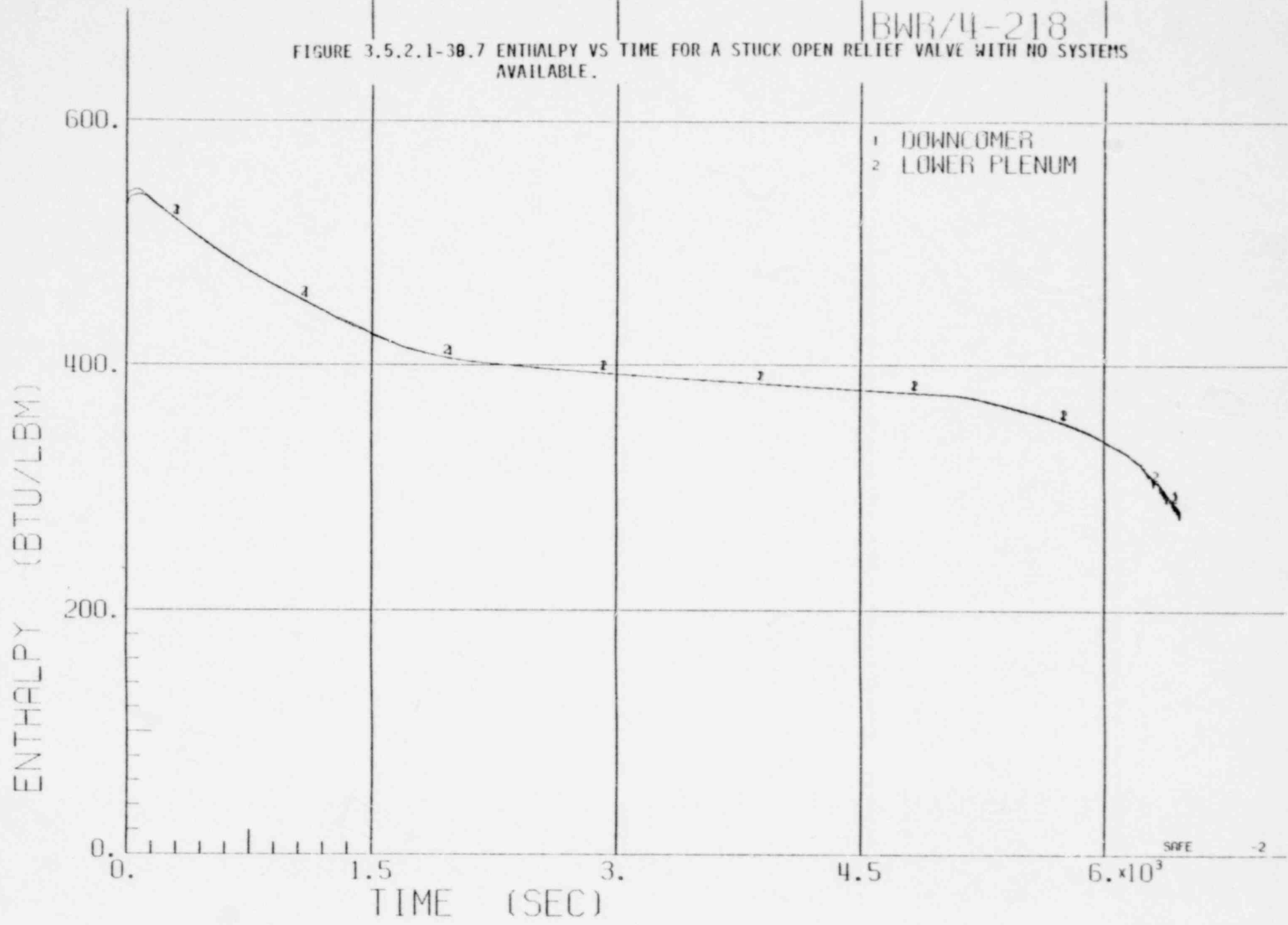
1549 311

PEAK CLAD TEMP - DEG F



BWR/4-218

FIGURE 3.5.2.1-38.7 ENTHALPY VS TIME FOR A STUCK OPEN RELIEF VALVE WITH NO SYSTEMS AVAILABLE.



1549 312

ENTHALPY (BTU/1BM)

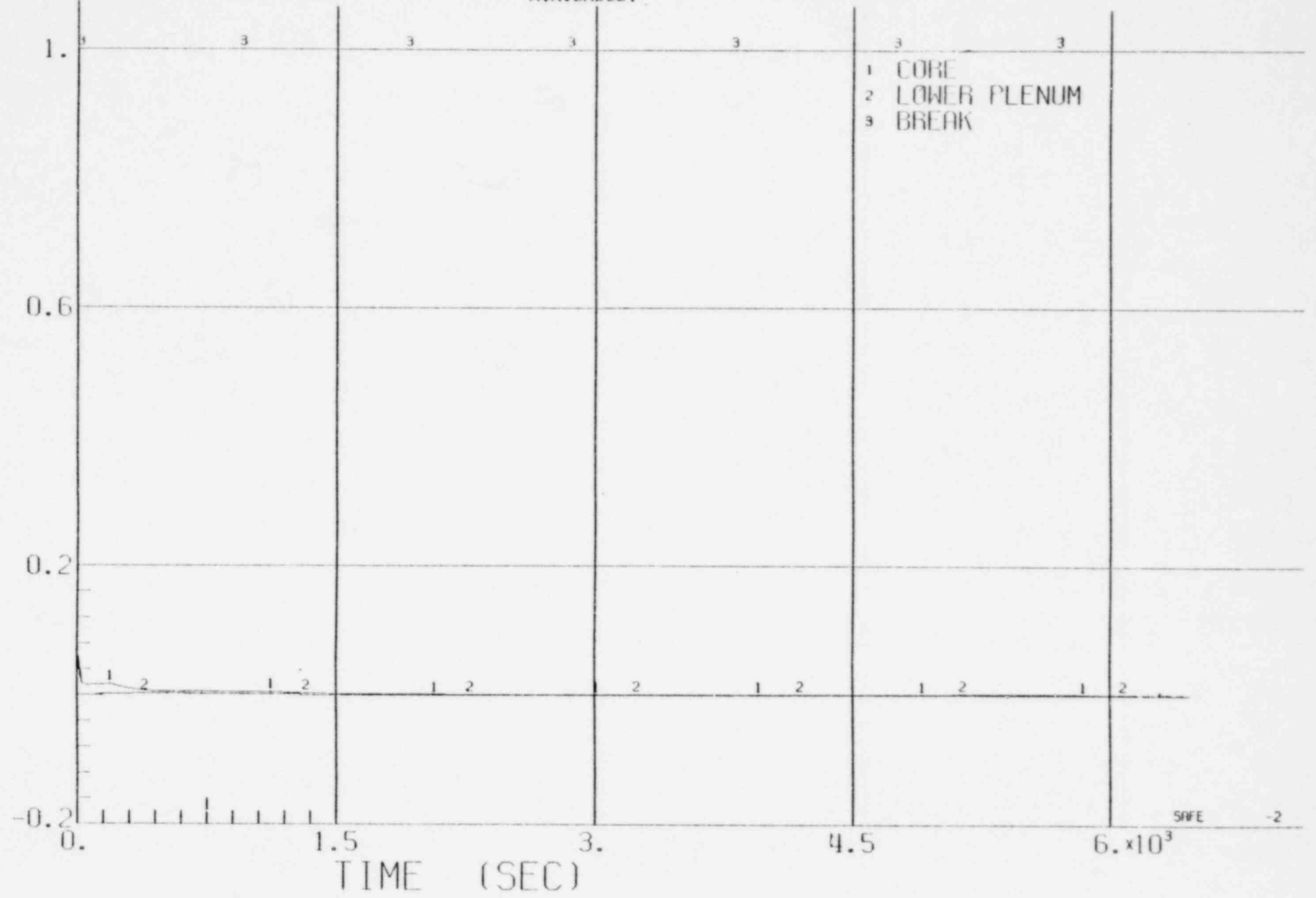
TIME (SEC)

SFFE

-2

BWR/4-218

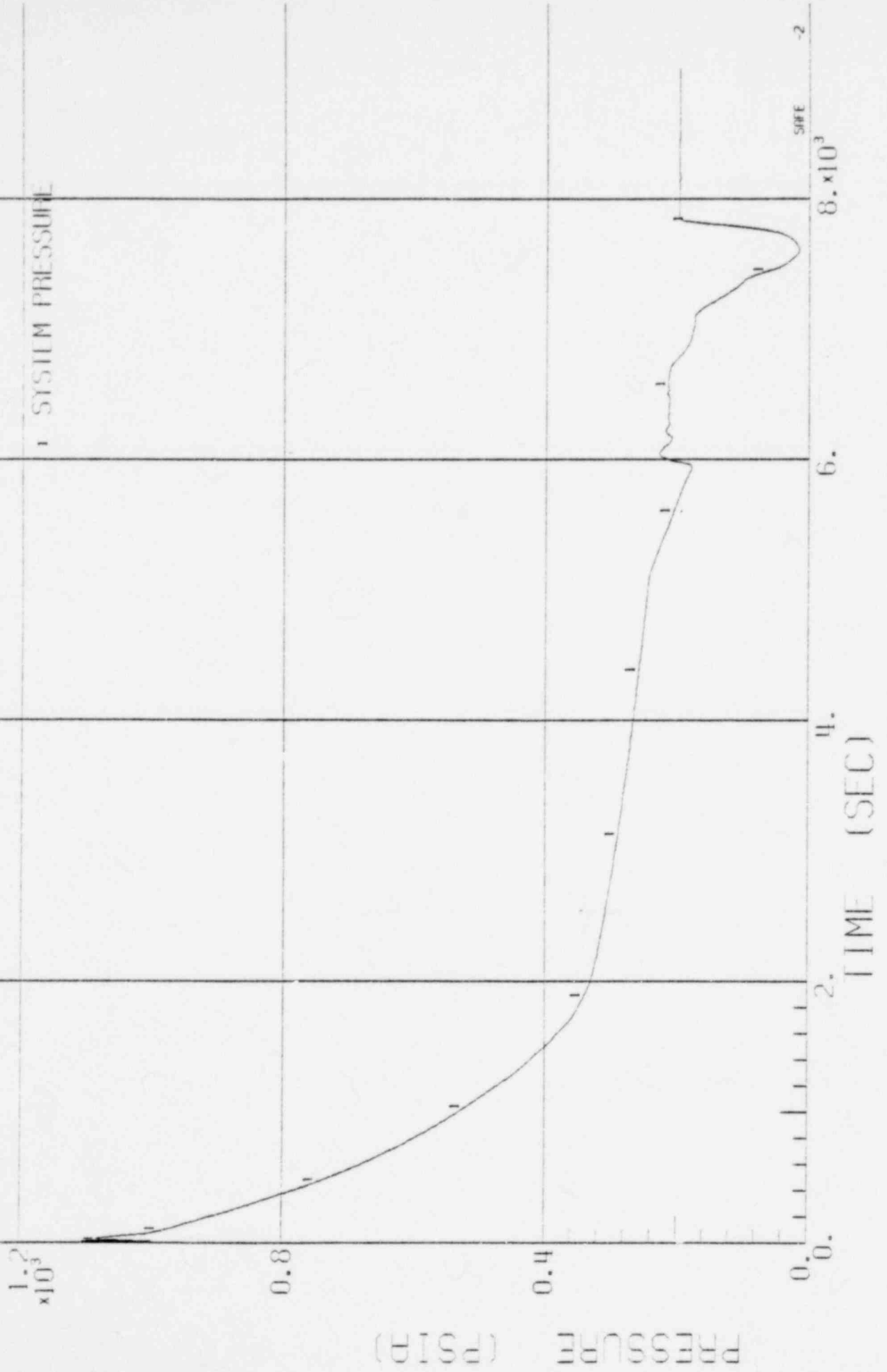
FIGURE 3.5.2.1-30.8 QUALITY VS TIME FOR A STUCK OPEN RELIEF VALVE WITH NO SYSTEMS AVAILABLE.



1549 313
QUALITY

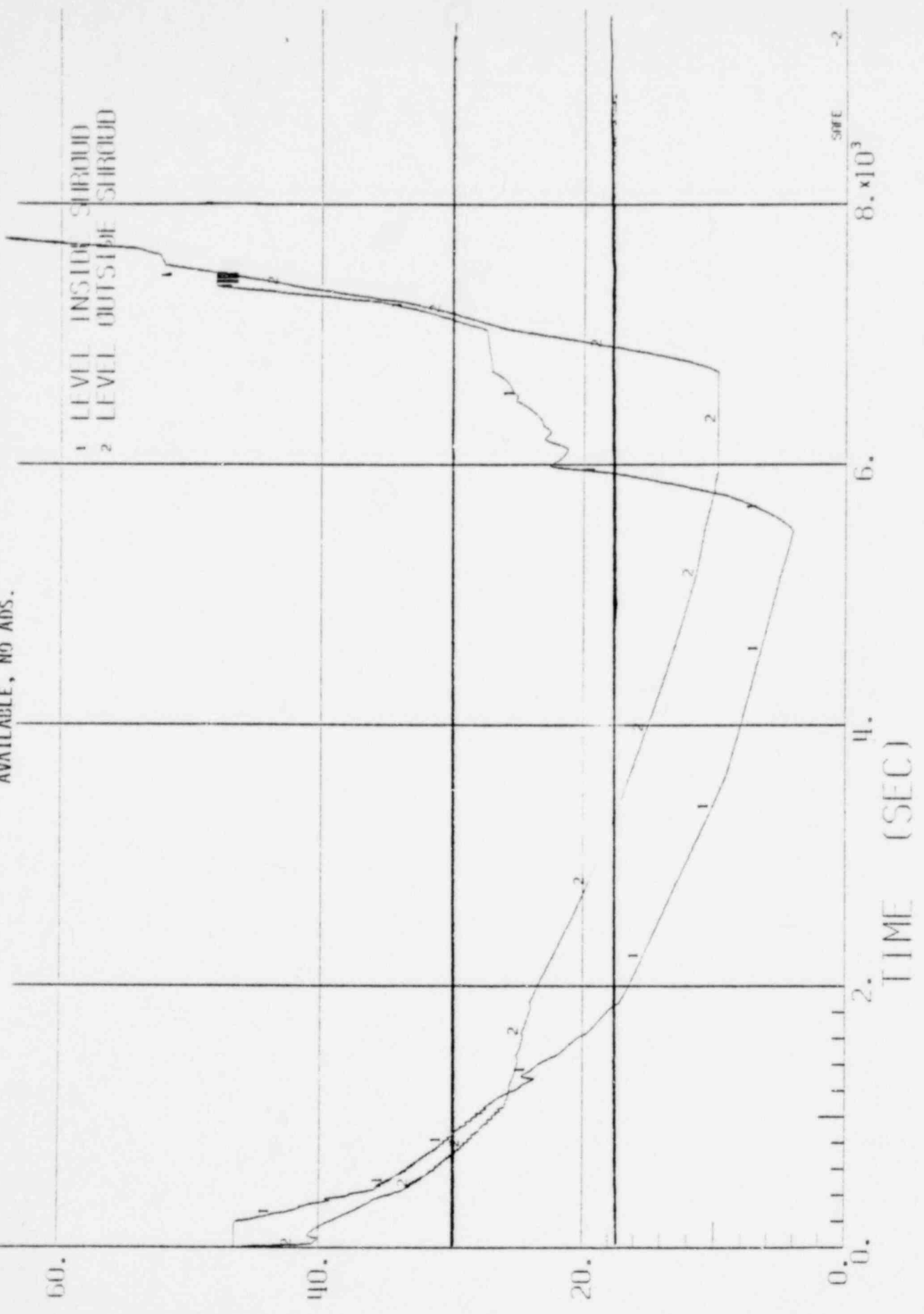
BWR/11-218

FIGURE 3.5.2.1-38.1 SYSTEM PRESSURE VS TIME FOR A STUCK OPEN RELIEF VALVE WITH ONE LPCI AVAILABLE, NO ADS.



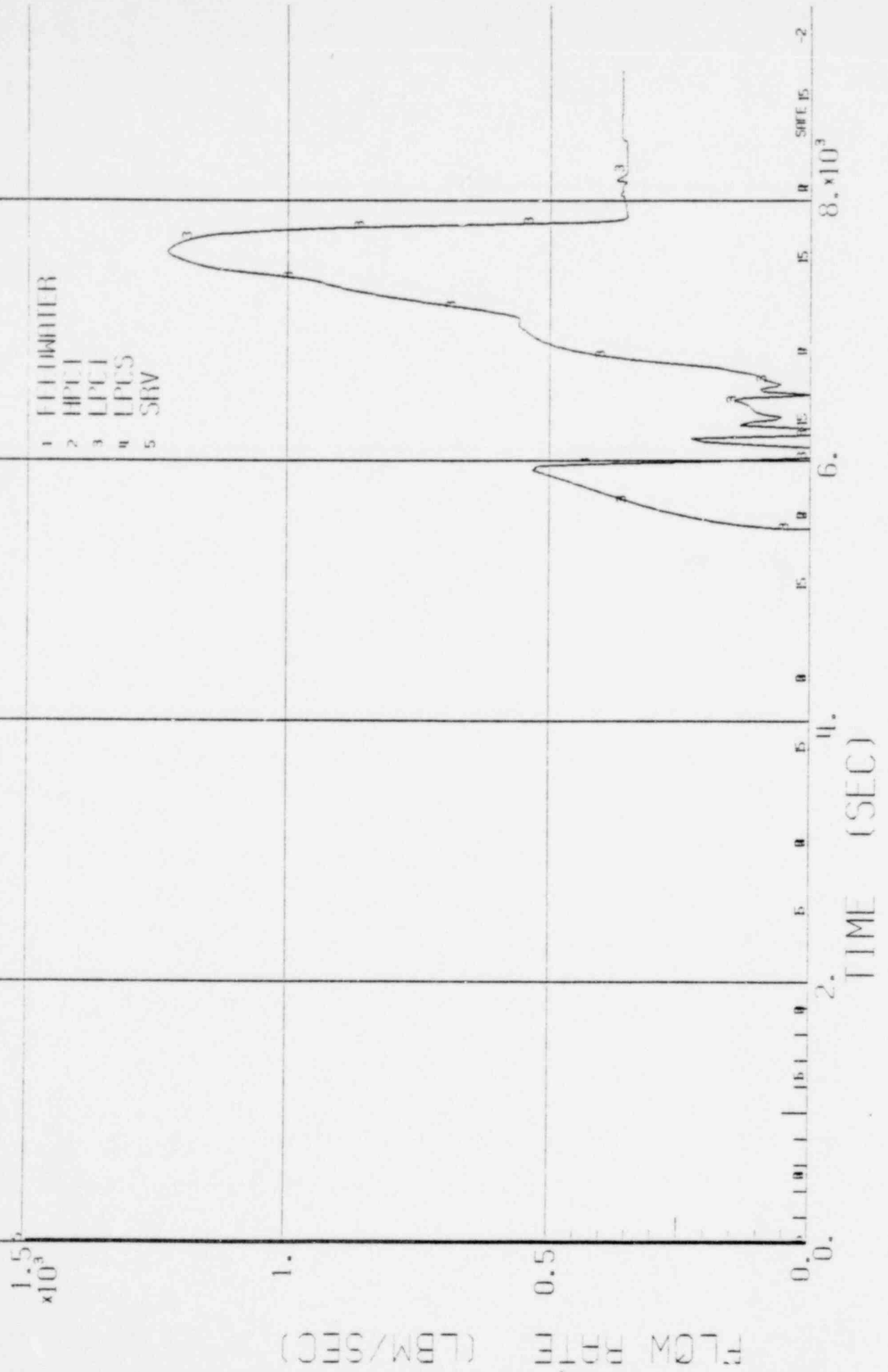
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FIGURE 3.5.2.1-39.2 WATER LEVEL VS TIME FOR A STUCK OPEN RELIEF VALVE WITH ONE LPCI AVAILABLE, NO ADS.



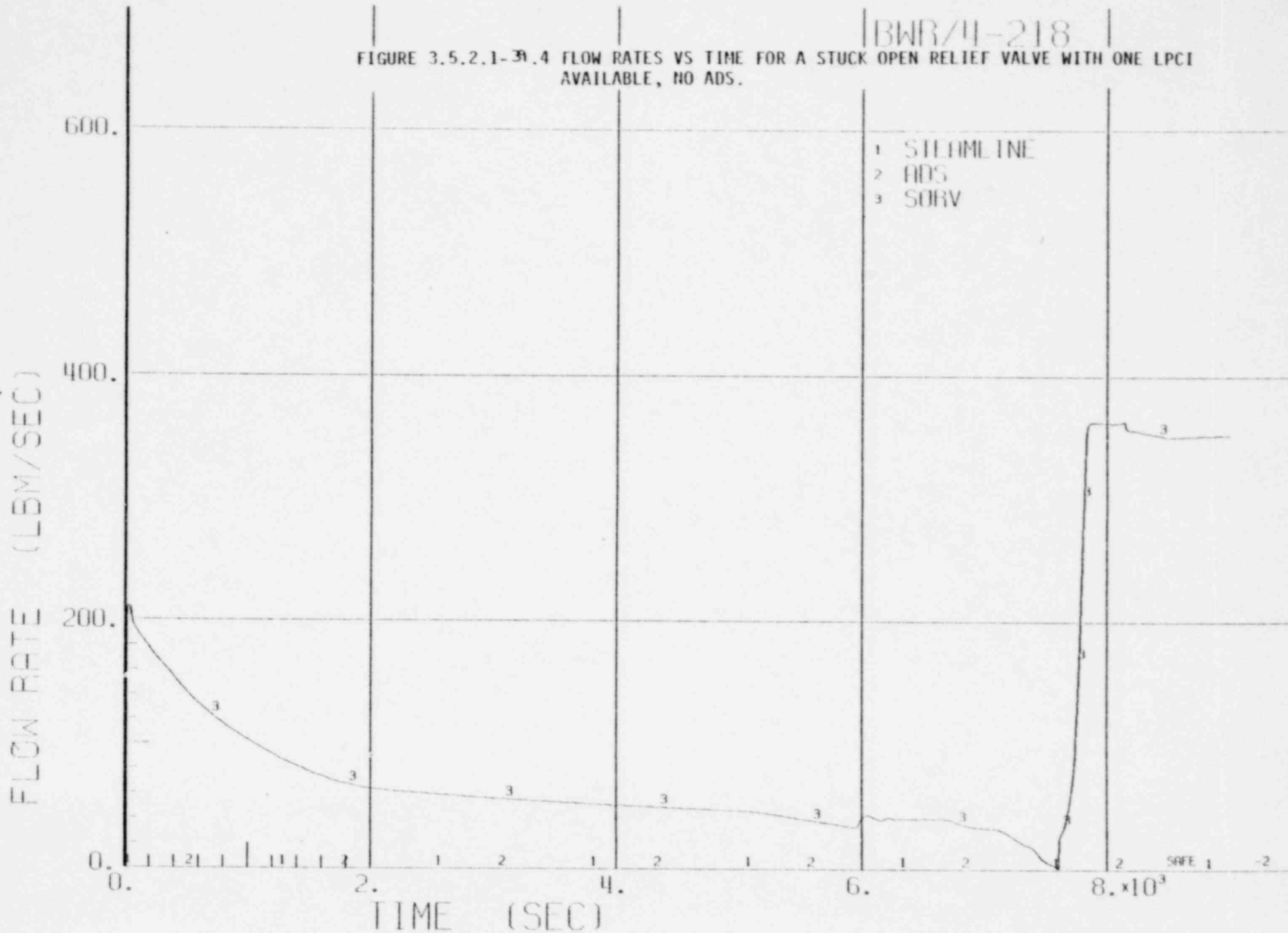
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FIGURE 3.5.2.1-39 .3 SYSTEM FLOW RATES VS TIME FOR A STUCK OPEN RELIEF VALVE WITH ONE LPCI AVAILABLE, NO ADS.



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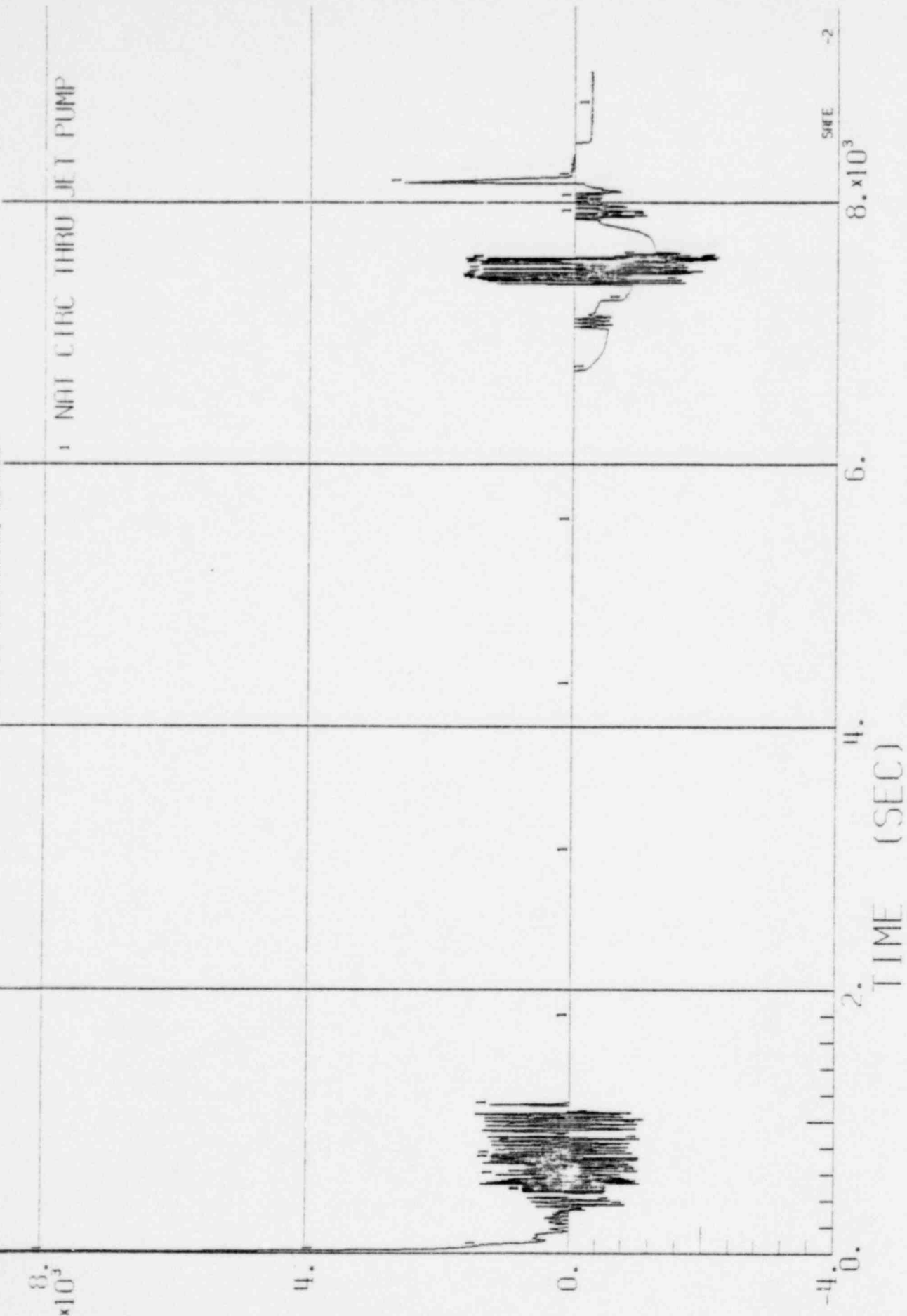
FIGURE 3.5.2.1-3.4 FLOW RATES VS TIME FOR A STUCK OPEN RELIEF VALVE WITH ONE LPCI AVAILABLE, NO ADS.



1549 317

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FIGURE 3.5.2.1-28 .5 NATURAL CIRCULATION FLOW RATE VS TIME FOR A STUCK OPEN RELIEF VALVE WITH ONE LPCI AVAILABLE, NO ADS



FLOW RATE (LBM/SEC)

1549 318

SIRE -2

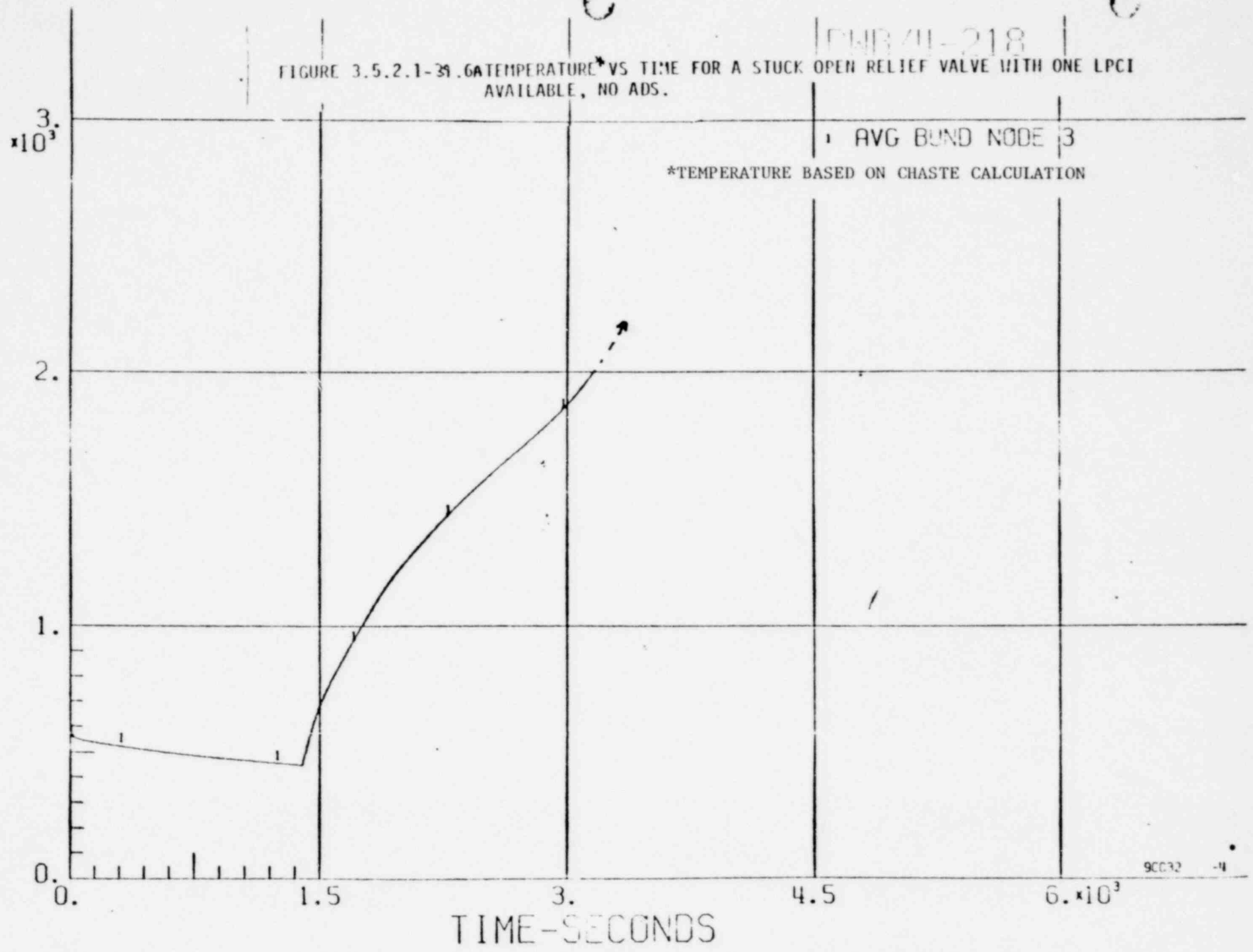
618 6791
PEAK CLAD TEMP - DEG F
319

DWB 41-218

FIGURE 3.5.2.1-39.6A TEMPERATURE* VS TIME FOR A STUCK OPEN RELIEF VALVE WITH ONE LPCI AVAILABLE, NO ADS.

AVG BUND NODE 3

*TEMPERATURE BASED ON CHASTE CALCULATION



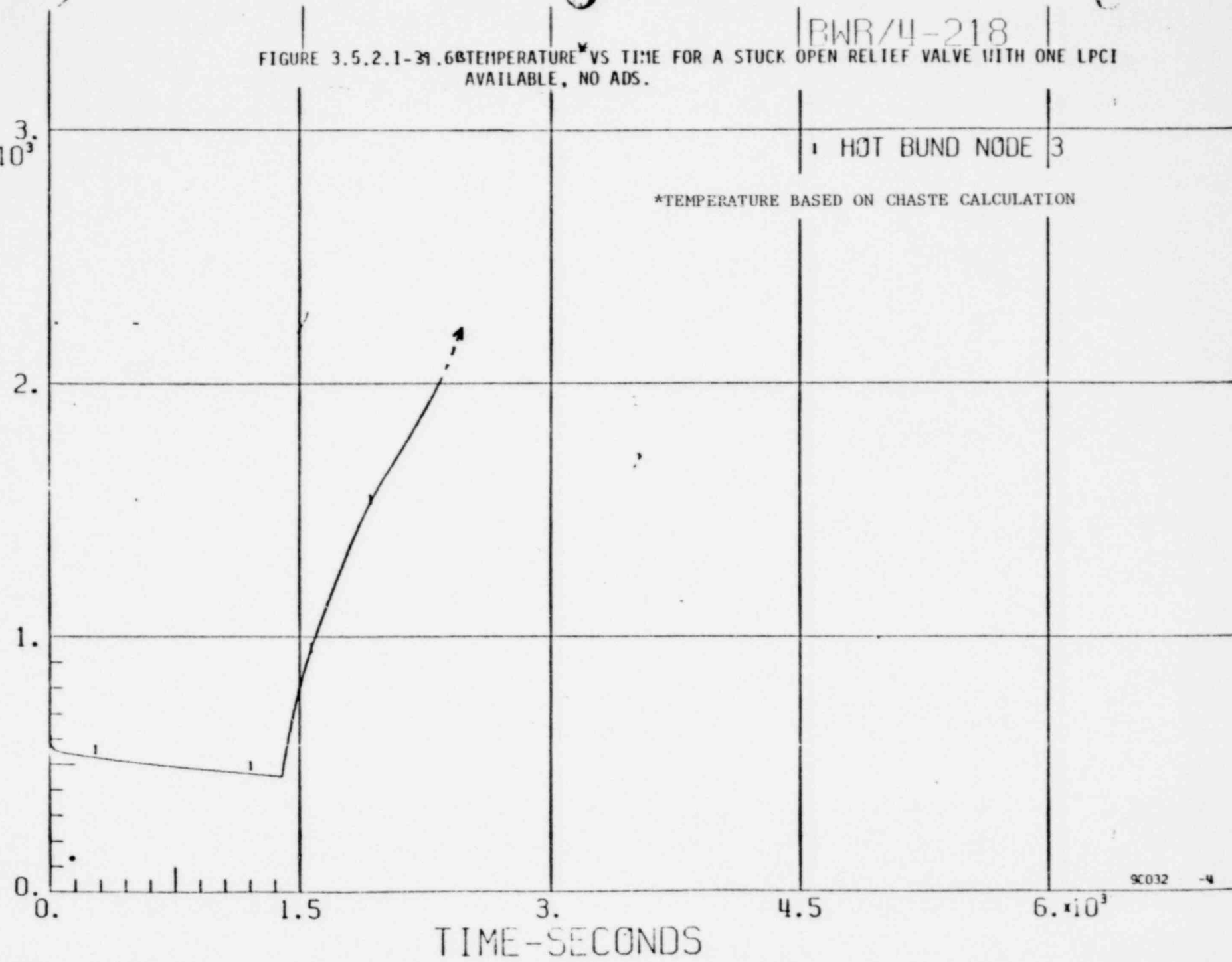
BWR/4-218

FIGURE 3.5.2.1-39.6B TEMPERATURE* VS TIME FOR A STUCK OPEN RELIEF VALVE WITH ONE LPCI AVAILABLE, NO ADS.

HOT BUND NODE 3

*TEMPERATURE BASED ON CHASTE CALCULATION

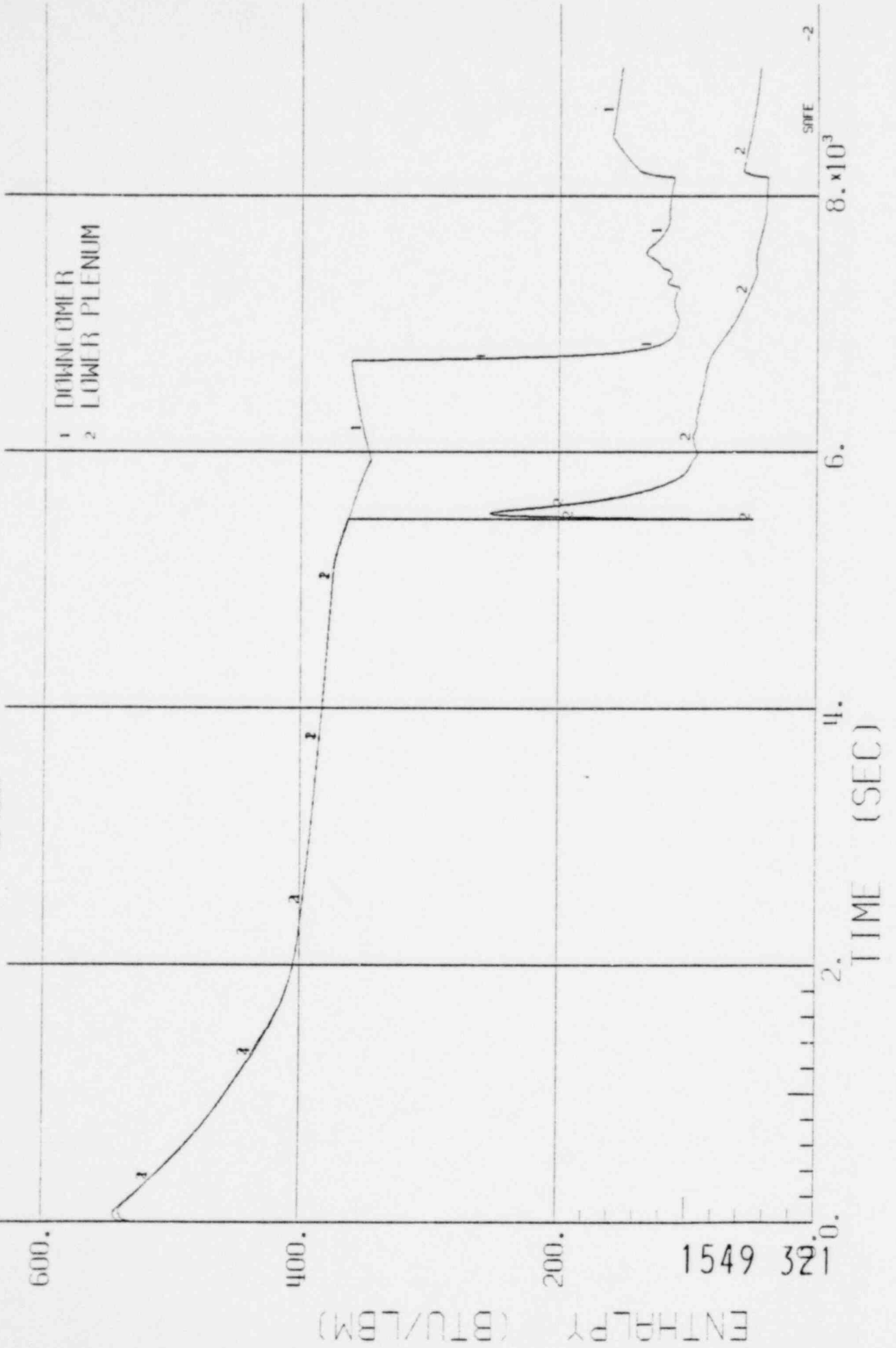
$\times 10^3$



PEAK CLAD TEMP - DEG F
549 320

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FIGURE 3.5.2.1-39.7 ENTHALPY VS TIME FOR A STUCK OPEN RELIEF VALVE WITH ONE LPCI AVAILABLE,
NO ADS.



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FIGURE 3.5.2.1-31.8 QUALITY VS TIME FOR A STUCK OPEN RELIEF VALVE WITH ONE LPCI AVAILABLE,
NO ADS.

