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F. L. CLAYTON, JR.  
Senior Vice President



February 3, 1981

Docket No. 50-348  
Docket No. 50-364

Director, Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Attention: Mr. A. T. Schwencer

Re: Joseph M. Farley Nuclear Plant - Units 1 & 2  
Small Break LOCA Additional Information

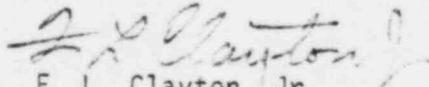
Gentlemen:

Enclosed is additional information requested by the NRC staff during a telephone conversation January 23, 1981. This information provides clarification of our letter to Mr. Schwencer dated November 21, 1980 which addressed Reactor Systems Branch Question 210.2 regarding a postulated LOCA during plant startup or shutdown.

The enclosed information shows that for two inch diameter breaks and smaller, adequate time and alarms are available for the operator to initiate SI manually. For two inch diameter breaks and larger, the containment high pressure setpoint is reached, prior to core uncover, thereby initiating actuation of the safety injection system.

If you have any questions concerning this item, please advise.

Very truly yours,

  
F. L. Clayton, Jr.

FLCJr/RWS:nac

Enclosures

cc: Mr. R. A. Thomas  
Mr. G. F. Trowbridge  
Mr. E. A. Reeves (w/Enclosure)  
Mr. L. L. Kintner (w/Enclosure)  
Mr. W. H. Bradford (w/Enclosure)

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THIS DOCUMENT CONTAINS  
POOR QUALITY PAGES

## ENCLOSURE

### ALARMS:

Several alarms exist which could provide indication to the operator that a loss of Reactor Coolant System (RCS) inventory accident is underway. These alarms include the following:

1. Low-pressurizer level deviation:  
At 5% below programmed pressurizer level an alarm will sound. For J. M. Farley Unit 2 this alarm must sound by 16.4% level, since this is 5% below the no-load programmed operating level of 21.4%.
2. Low-pressurizer level heater cutoff at 15%.

### SETPOINTS:

The high containment setpoint for J. M. Farley is 5.4 PSIG.

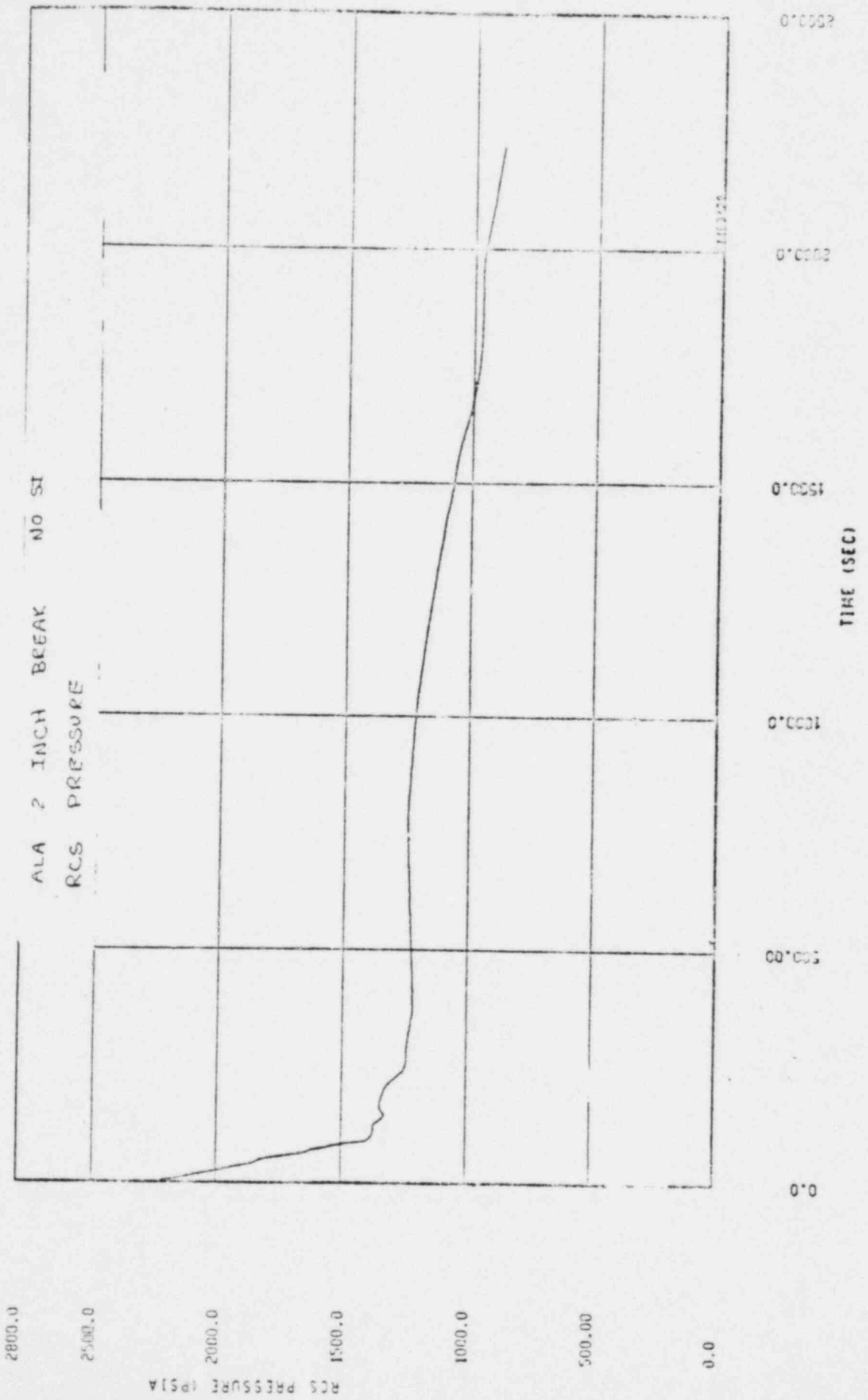
### ANALYSIS:

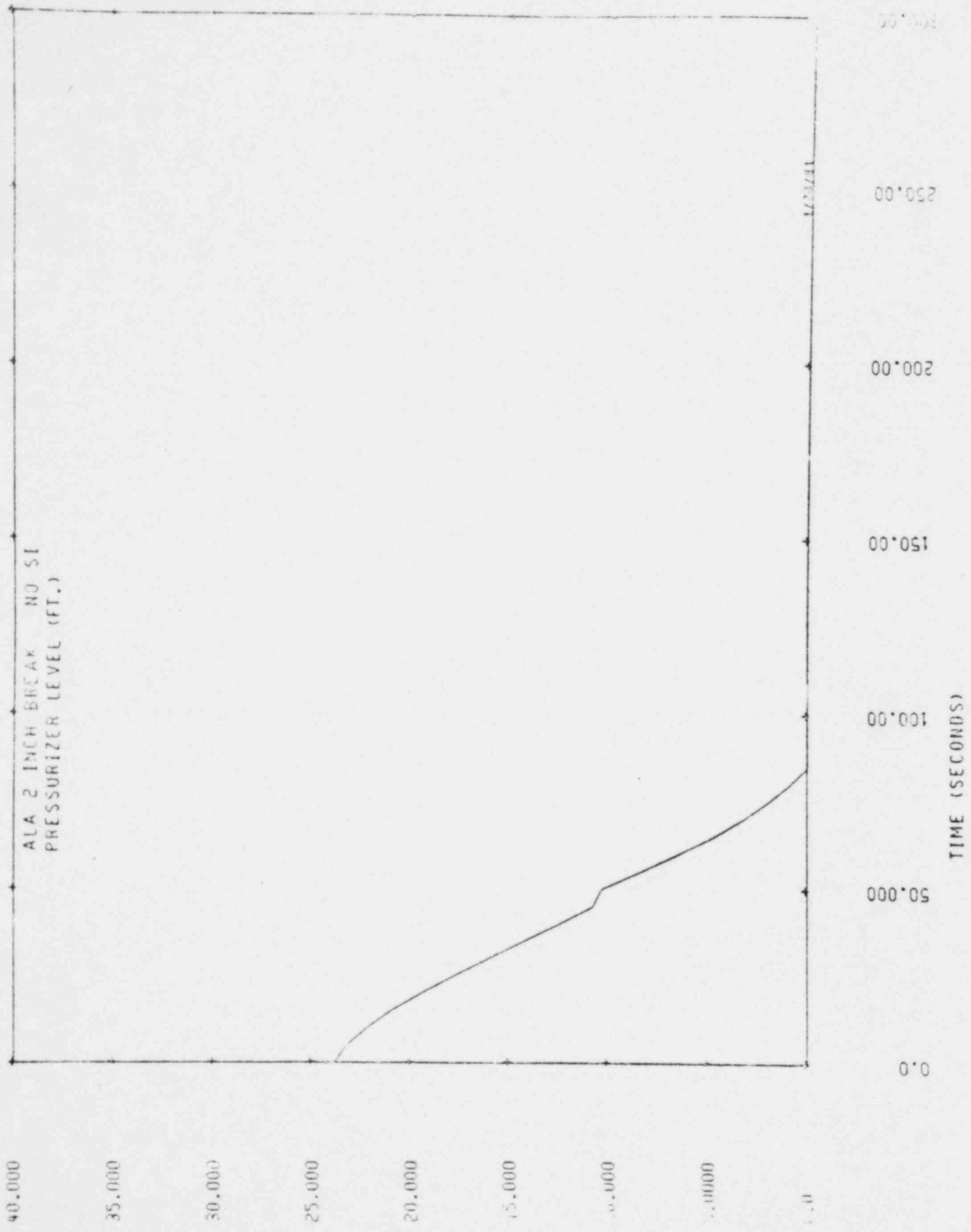
Based upon the Inadequate Core Cooling Study (WCAP 9753), it can be concluded that smaller breaks will exhibit longer transients than larger breaks; thus there will be more time for the operator to take action in a smaller break than in a larger break transient.

Calculations by Westinghouse show that a two inch diameter equivalent break with no SI would result in no core uncover in a three loop plant for approximately 22 minutes. Within the first 1.5 minutes of the transient, all of the previously described alarms would have sounded leaving the operator approximately 20 minutes to initiate SI manually.

Calculations also show that a two inch diameter equivalent break with no SI, would result in the high containment pressure SI trip in approximately 5 minutes for a three loop plant.

Thus, for breaks less than or equal to two inches in diameter, the operator would have at least 20 minutes to initiate SI manually, and for breaks greater than or equal to two inches in diameter, a high containment pressure SI trip would be reached in 5 minutes, and would provide SI automatically.





14.000

12.500

10.000

7.5000

5.0000

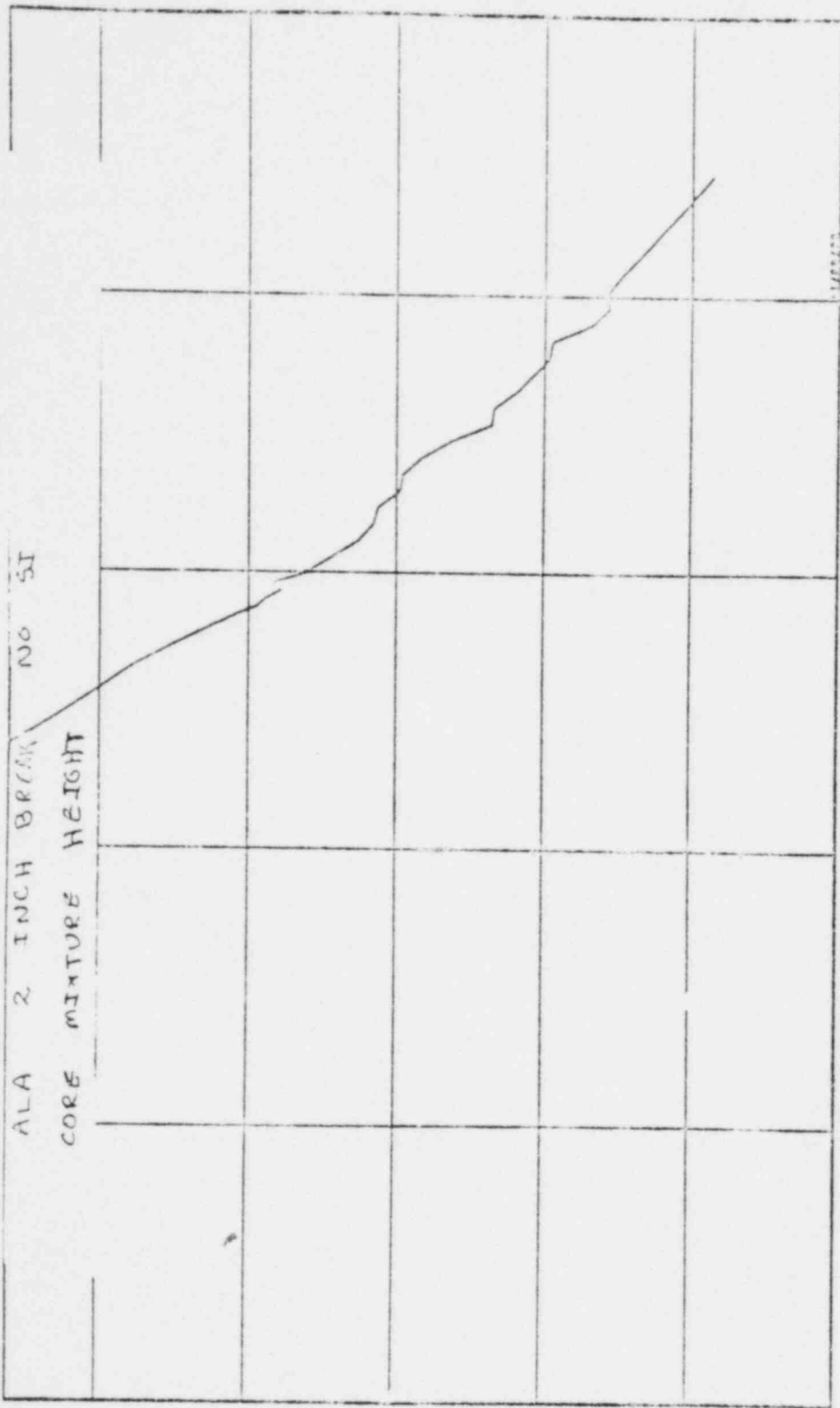
2.5000

0.0

CORE HEIGHT (FT)

ALA 2 INCH BREAK NO 51

CORE MIXTURE HEIGHT



0.0

500.00

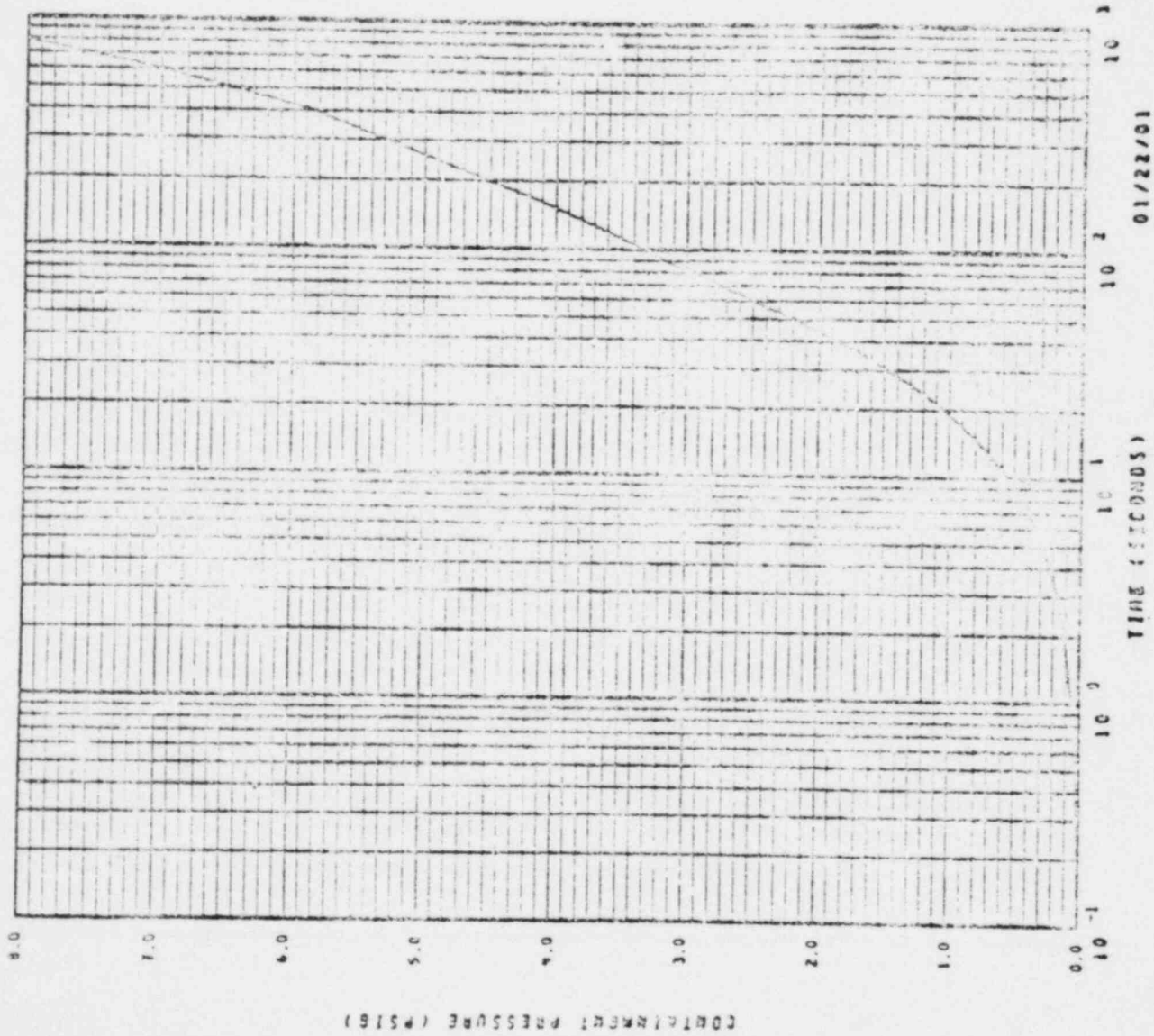
1000.0

1500.0

2000.0

2500.0

TIME (SEC)



JOSEPH FARLEY UNIT 1 SMALL BOREM COCO WFLASH 01/22/01