



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

July 10, 1985

Docket No. 50-219

LICENSEES: GPU Nuclear Corporation
Jersey Central Power and Light Company

FACILITY: Oyster Creek Nuclear Generating Station

SUBJECT: MAY PROGRESS REVIEW MEETING SUMMARY ON LICENSING ACTIONS AND
MEETING ON EMERGENCY OPERATING PROCEDURES (EOPs) FOR
ANTICIPATED TRANSIENTS WITHOUT SCRAM (ATWS)

On Wednesday, June 19, 1985, a meeting was held at NRC, Bethesda, Maryland with GPU Nuclear (the licensee) on Oyster Creek. This meeting was held to discuss the following: 1) emergency operating procedures (EOPs) for anticipated transients without scram (ATWS) and 2) May progress review summary on incompleted licensing actions. The meeting on licensing actions was originally scheduled for June 12, 1985, but had to be rescheduled to June 19, 1985. Attachment 1 is the list of individuals that attended the meeting. The following is a summary of the significant items discussed and the actions taken or proposed.

1.0 EOPs for ATWS Meeting

Also attached is a marked up copy of the slides used by the licensee in its presentation. Three separate ATWS events are discussed in the slides.

The licensee stated that it is not going with ATWS contingency #7 in the emergency procedure guidelines (EPGs) of the BWR Owner's Group and that there will be simulator training in the EOPs for control room operators.

The next formal step for the licensee is to submit the completed EOPs for ATWS. There were no comments by the staff.

2.0 Status of Licensing Actions

This is the May Progress Summary Report for licensing actions. The status of all incompleted Oyster Creek licensing actions was discussed. The following actions were taken or proposed:

- A copy of a list of non-proprietary Foreign Report Translations available to NRC was given to the licensee.
- The licensee requested the staff complete its review of its Technical Specification Change Request (TSCR) #123 Revision 1, dated February 11, 1985 (NRC TAC #56800) and issue the license amendment before October 1985. The licensee will be required to remove certain safety valves and bench test them for proper setpoint in October under existing Technical Specification (TS) 4.3.E if the

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PDR ADOCK 05000219
F PDR

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TSCR #123 is not approved before October 1985.

Region I which is doing the review has been informed of this request and has agreed to complete its review by the deadline.

- The licensee requested an up-to-date copy of the NRR phone directory. This was provided to the licensee in the meeting by the NRC project manager.
- The licensee's TSCR #118 to reissue the entire Appendix A Technical Specifications of the license for clarity and format purposes was again discussed. This was submitted by the licensee by letter dated December 8, 1983. The NRC TAC Number is 53411.

The staff has not completed its review of TSCR #118. Since December 1983, the staff has issued 18 amendment changes to date to the plant TS, some of them major changes. The licensee's December 8, 1983 submittal is, therefore, out-of-date and practically not an acceptable submittal. At one time, the licensee agreed to resubmit TSCR #118 to bring its submittal up-to-date but it has not done so.

The licensee agreed to withdraw its December 8, 1983, submittal and to work with the staff on reissuing the entire Appendix A TS in a clearer format. This could be the staff typing the TS as it does for NTOLs and issuing the newly typed TS when the staff issues the Full Term Operating License.

This will close out the staff's work on TAC #54311.

- The following licensing actions were completed by the staff in May 1985 with letters sent to the licensee:

TSCR #123 dated June 8, 1984,
GL 83-02 NUREG-0737 Technical Specifications.

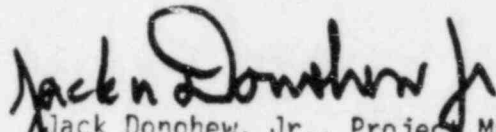
TSCR #122 dated May 25, 1984,
GL 83-28 Item 1.1, Salem ATWS.

TSCR #131 dated December 24, 1984,
GL 83-43, LER Rule, 50.72 and 50.73.

Revision to NUREG-0737 Item II.K.3.21,
IE Bulletin 84-01, Vent Header Cracks, and

Revision to Staff SER dated June 28, 1983.

The June progress summary meeting will be held at the Oyster Creek plant site on Wednesday July 31, 1985.


Jack Donohew, Jr., Project Manager
Operating Reactors Branch #5
Division of Licensing

Attachment:
List of Attendees
Licensee Slides

cc: D. Crutchfield
D. Haverkamp, Region I
M. Conner, Region I

July 10, 1985

- 3 -

The June progress summary meeting will be held at the Oyster Creek plant site on Wednesday July 31, 1985.

Jack Donohew Jr.
Jack Donohew, Jr., Project Manager
Operating Reactors Branch #5
Division of Licensing

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List of Attendees
Licensee Slides

cc: D. Crutchfield
D. Haverkamp, Region I
M. Conner, Region I

DISTRIBUTION

Docket File

ORB#5 Reading
CJamerson
JZwolinski
JDonohew
NRC PDR
Local PDR
OELD
EJordan
BGrimes
ACRS (10)
NRC Participants

DL:ORB#5
CJamerson
07/13/85

DL:ORB#5
JDonohew:tm
07/13/85

DL:ORB#5
JZwolinski
07/18/85

SE01
EX-51 11

CC

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Mr. P. B. Fiedler
Vice President & Director
Oyster Creek Nuclear Generating
Station
Post Office Box 388
Forked River, New Jersey 08731

ATTACHMENT 1

MEETING WITH GPU NUCLEAR ON
LICENSING ACTIONS AND EOPS FOR ATWS

JUNE 19, 1985

<u>Name</u>	<u>Organization</u>
J. Donohew	NRC/DL
B. Agrawal	NRC/PES
W. Hodges	NRC/NRR/RSP
K. Tosch	NJDEP
M. Laggart	GPU Nuclear
J. Lachenmayer	GPU Nuclear
A. Irani	GPU Nuclear
C. Baty	Bechtel
N. Trikouros	GPU Nuclear
J. Zwolinski	NRC/DL

AGENDA

ATWS EVALUATION FOR OYSTER CREEK NRC / GPUN MEETING

JUNE 19, 1985

- I. INTRODUCTION AND BACKGROUND
- II. GPUN APPROACH TO ATWS ISSUE
- III. GPUN ATWS ANALYSES
- IV. ATWS EMERGENCY OPERATING PROCEDURE GUIDELINES

INTRODUCTION AND BACKGROUND OF ATWS ISSUE

- BWROG ISSUED CONTINGENCY 7
 - GUIDELINES FOR ATWS MITIGATION (PHILOSOPHY TO REDUCE WATER LEVEL TO TOP OF ACTIVE FUEL)
 - NO CONSIDERATION FOR BWR 2s

- GPU DECISION TO DEVELOP PLANT SPECIFIC ATWS GUIDELINES
 - GUIDELINES USE CURRENT PLANT SYSTEMS

PERTINENT OC DESIGN INFORMATION

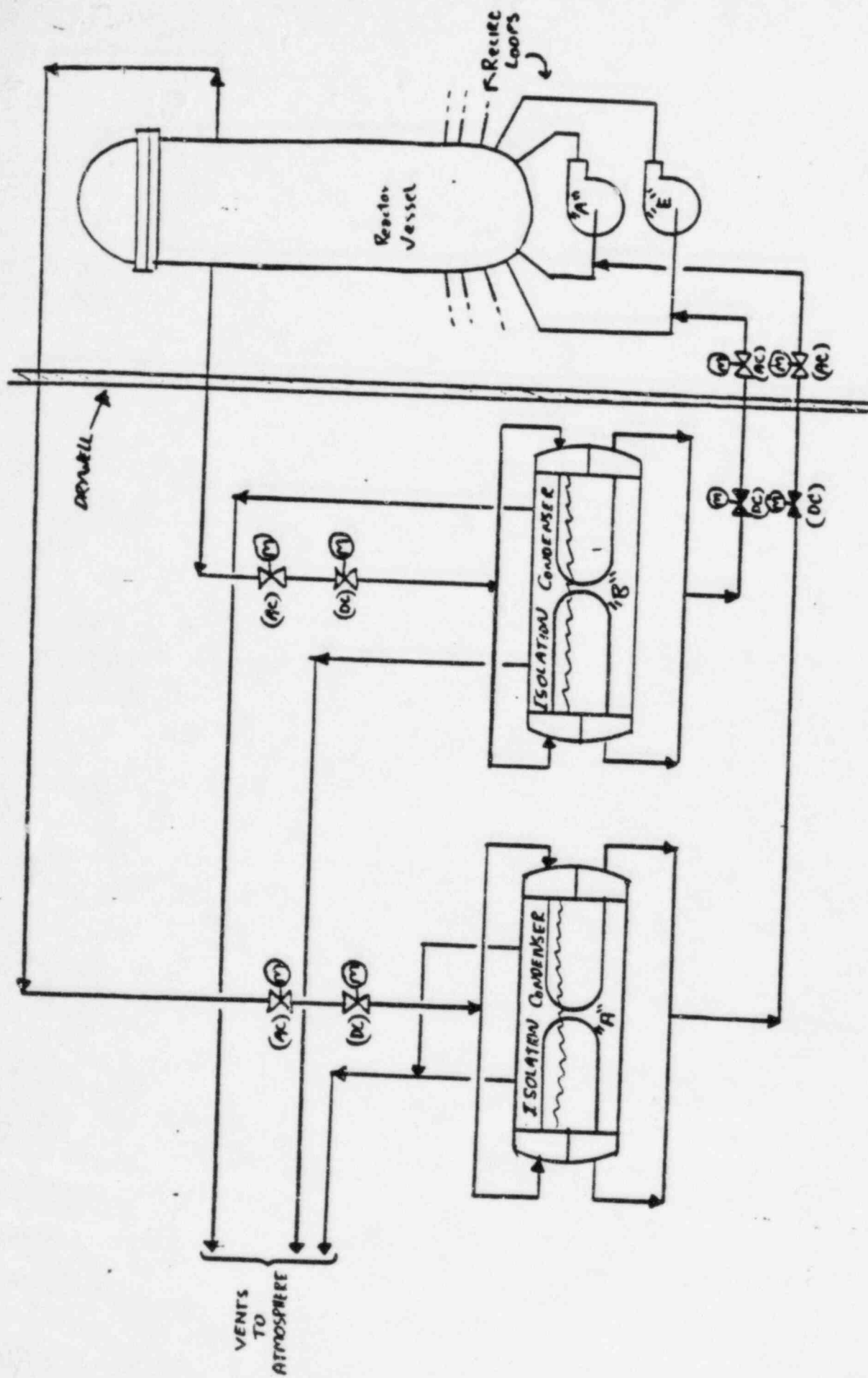
ISOLATION CONDENSERS

NO HPCI

NO RCIC

CONTAINMENT SPRAY

CORE SPRAY



Isolation Condensers

FIGURE XIII-1

AP3

Containment spray

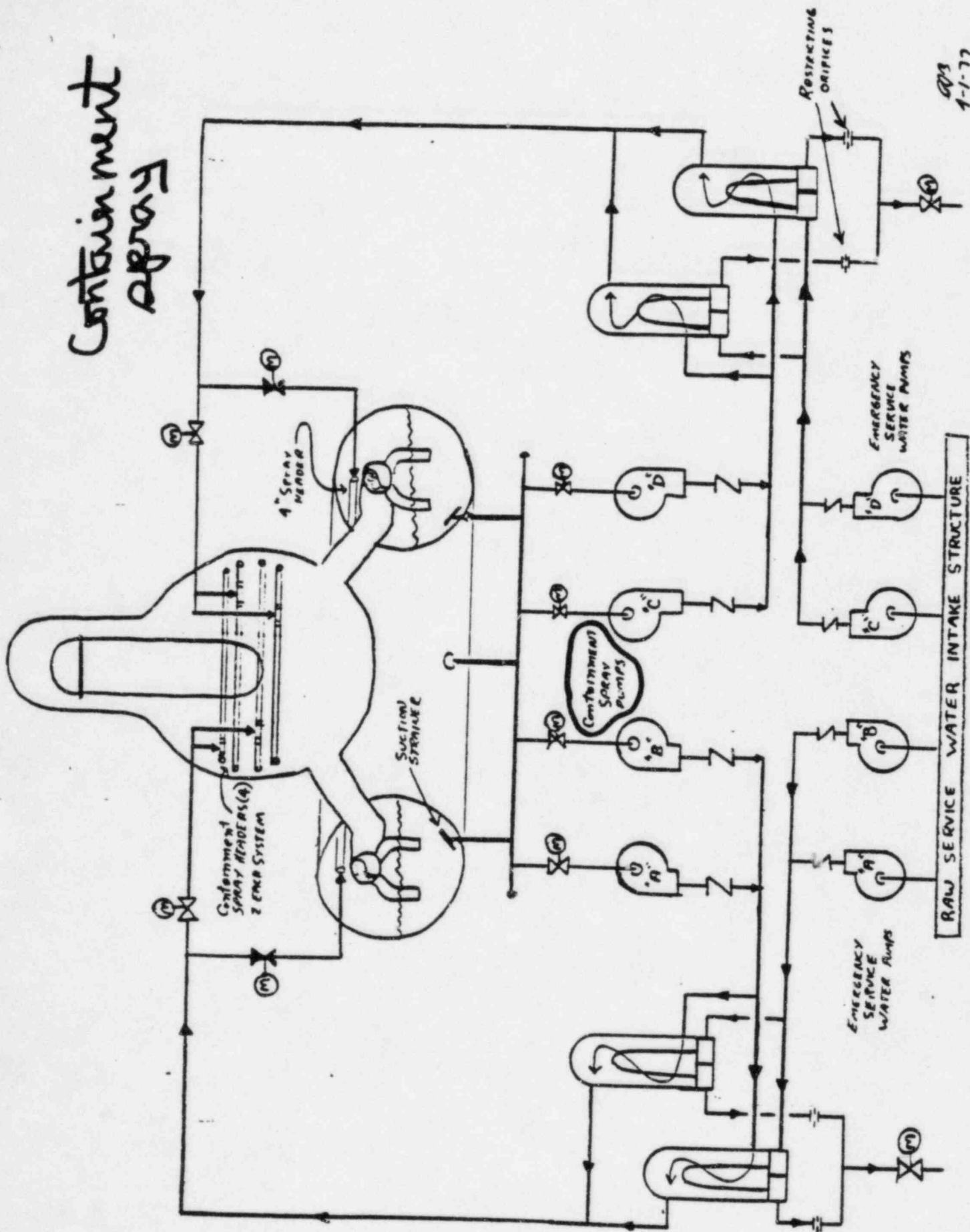
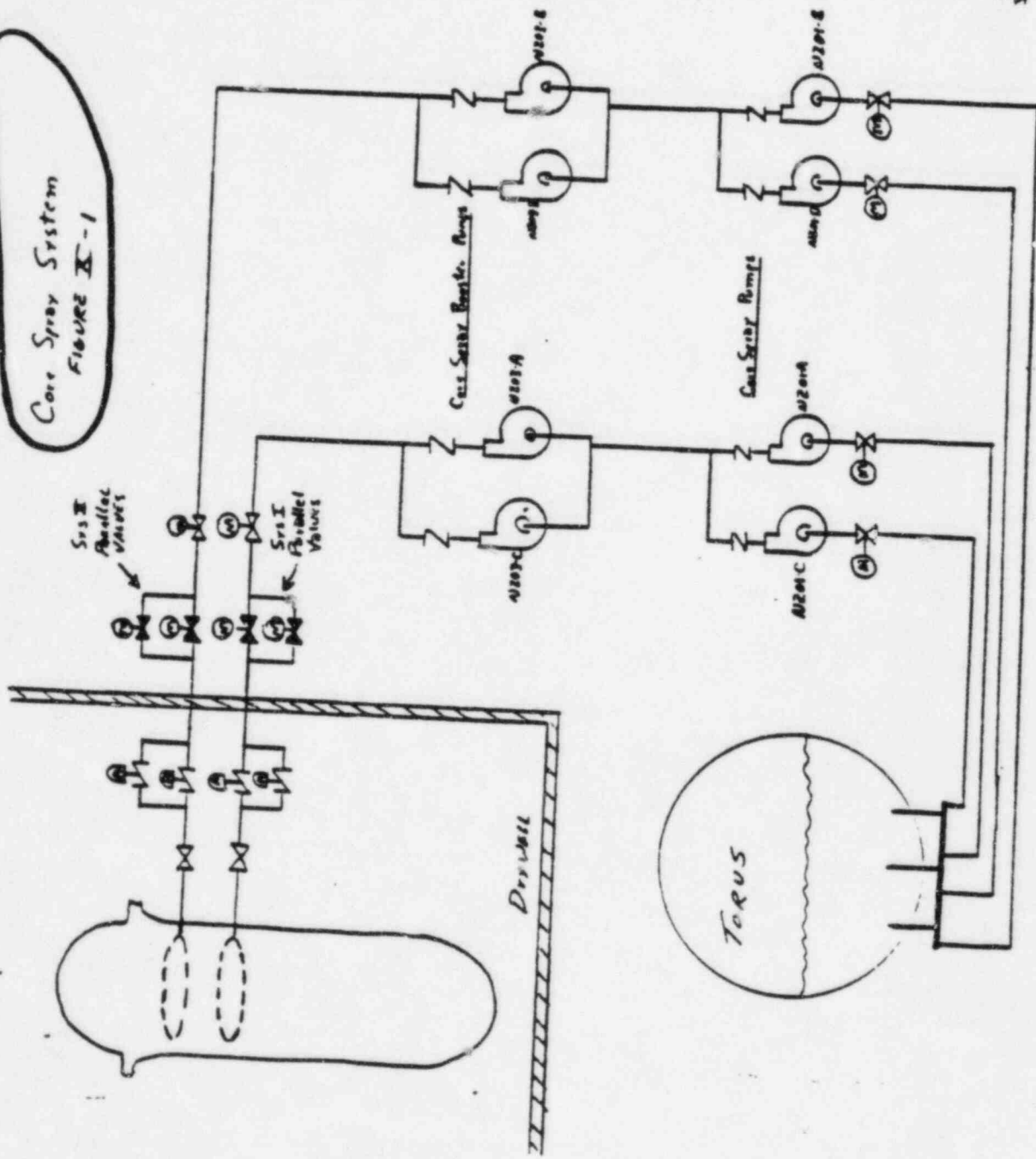


FIGURE VIII-1

Q9
4-1-77

Core Spray System
FIGURE I-1



GPUN APPROACH TO ATWS ISSUE

- USE STATE-OF-THE-ART COMPUTER CODES
- PERFORM CODE-TO-CODE VERIFICATION
- - RELAP5 - POINT KINETICS
 - RETRAN - 1D KINETICS
 - RAMONA - 3D KINETICS

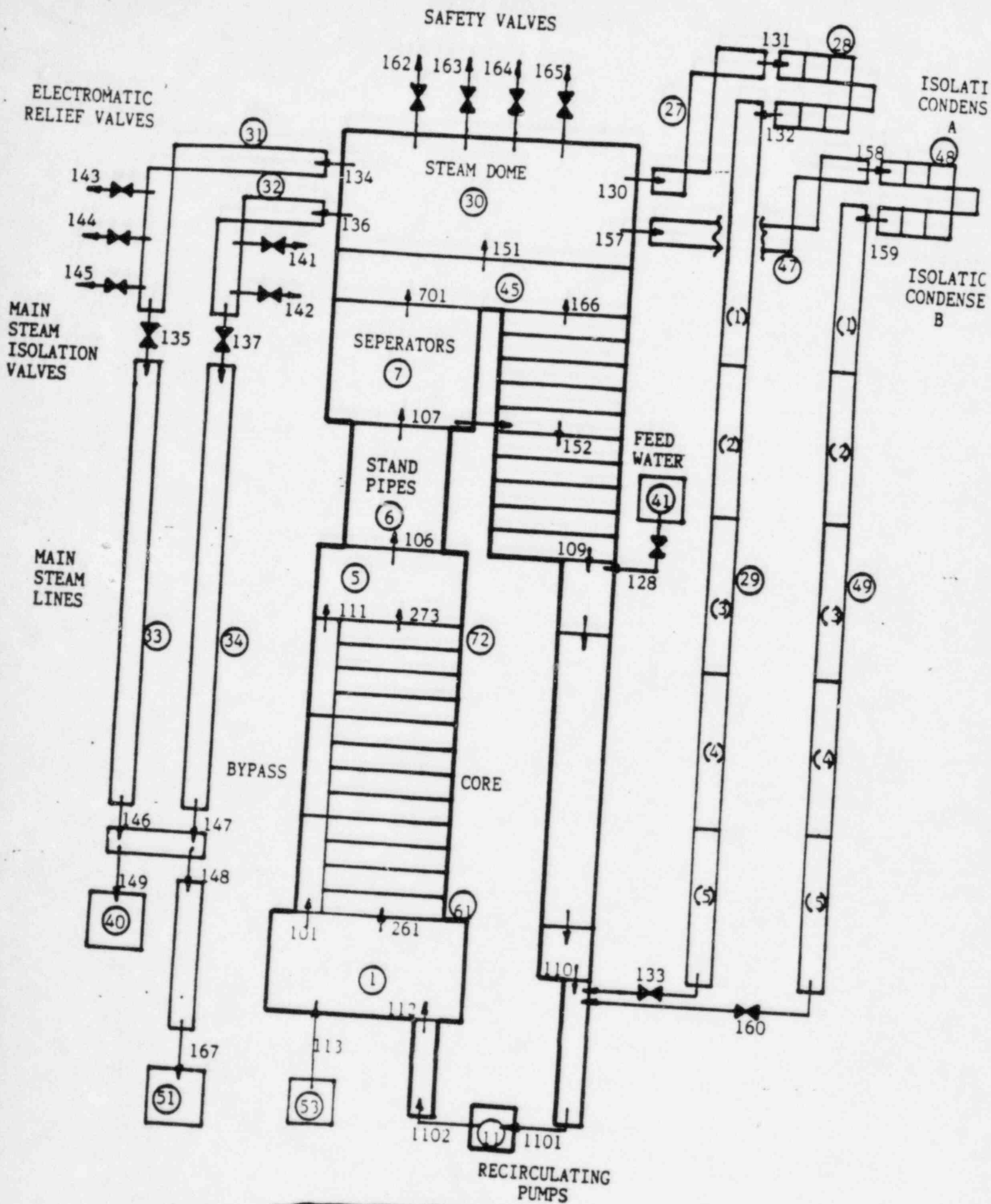
GPUN ATWS ANALYSES TO DATE

• MSIV CLOSURE AND LOFW CASES ANALYZED (RELAP5 / MOD1)

- MOST SEVERE ATWS TRANSIENTS FOR OC

Thermal hydraulic

- DETERMINE *Thermal hydraulic* T/H BEHAVIOR OF THE NSSS
- DETERMINE TIMING OF SIGNIFICANT EVENTS
- DETERMINE TIME UNTIL BORON BECOMES EFFECTIVE IN SHUTTING DOWN THE CORE
- EVALUATE VARIETY OF SYSTEM / OPERATOR ASSUMPTIONS



OYSTER CREEK RELAPS ATWS MODEL

AUTOMATIC MSIV CLOSURE ATWS

SEQUENCE OF EVENTS

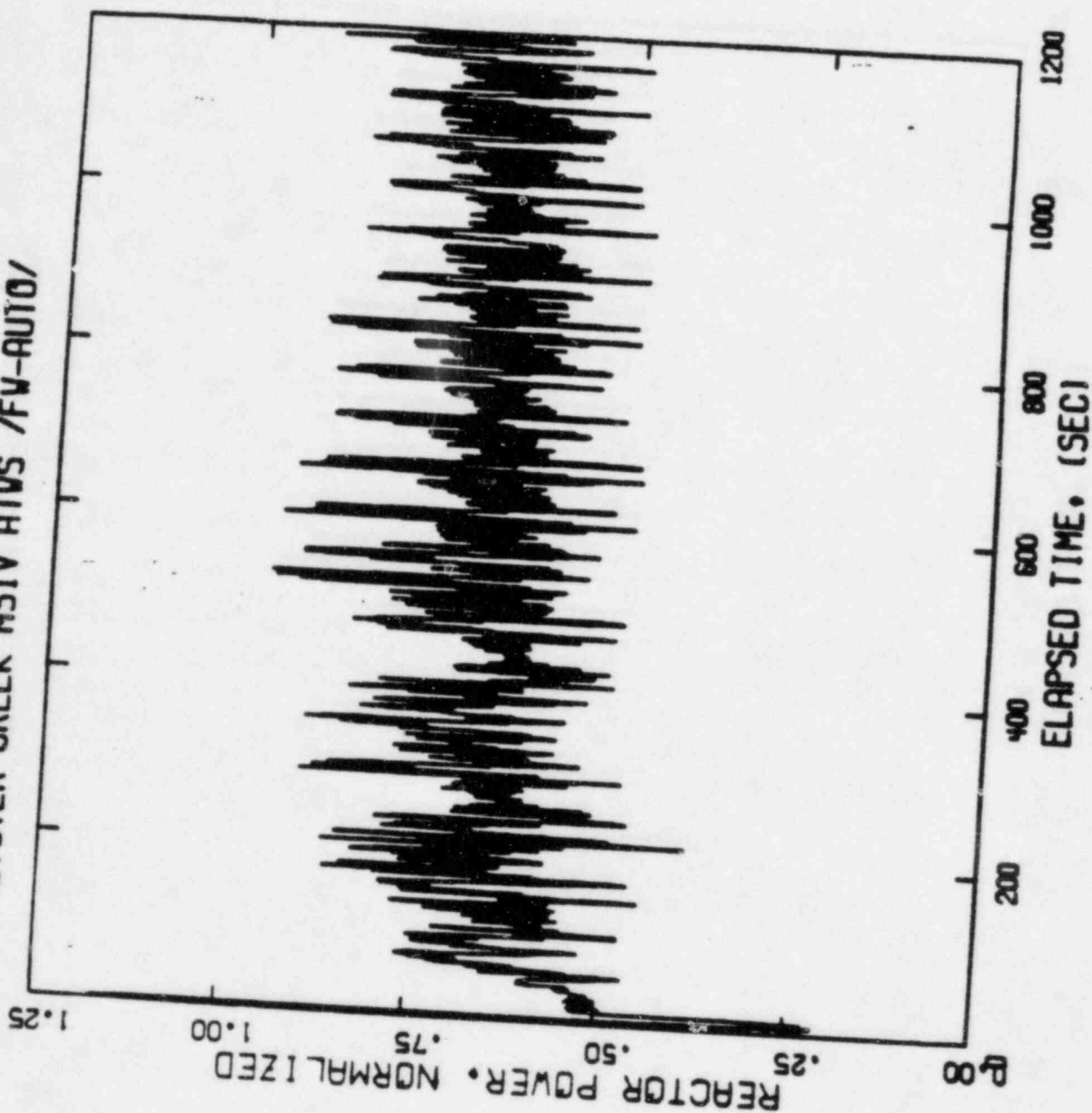
(FEEDWATER CONTROL IS 'ON')

<u>EVENT</u>	<u>TIME / SEC</u>
MSIV closure (Initiating Event)	0.01
[Reactor would trip on high pressure]	[3.4]
Recirculation pumps trip on high pressure	3.4
EMRVs open and SVs start oscillating	3.4
Isolation condenser(s) valves open	18.4
Containment Spray Heat Exchanger #1 <u>started by operator</u> (90°F)	35.4
Containment Spray Heat Exchanger #2 <u>started by operator</u> (95°F)	67.7
* [Probable ADS signal - <u>Inhibit</u>]	[~100]
Torus temperature of 110°F	155
1. <u>SLCS</u> initiated by operator	
↓ Standby Liquid Control System	
↓ instructions in EOPs	

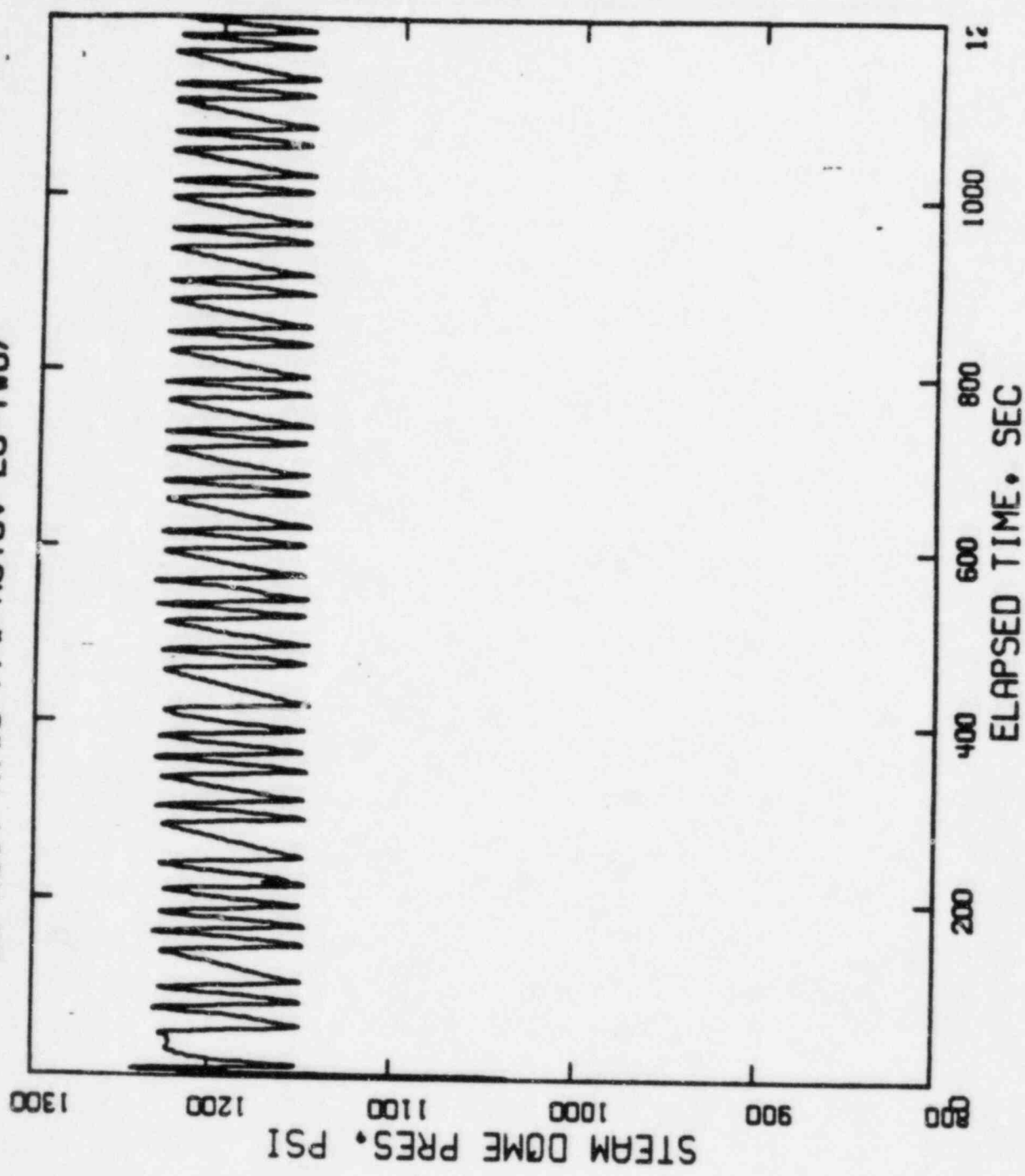
2 minute
Timer

Feedwater

OYSTER CREEK MSIV ATVS /FV-AUTO/

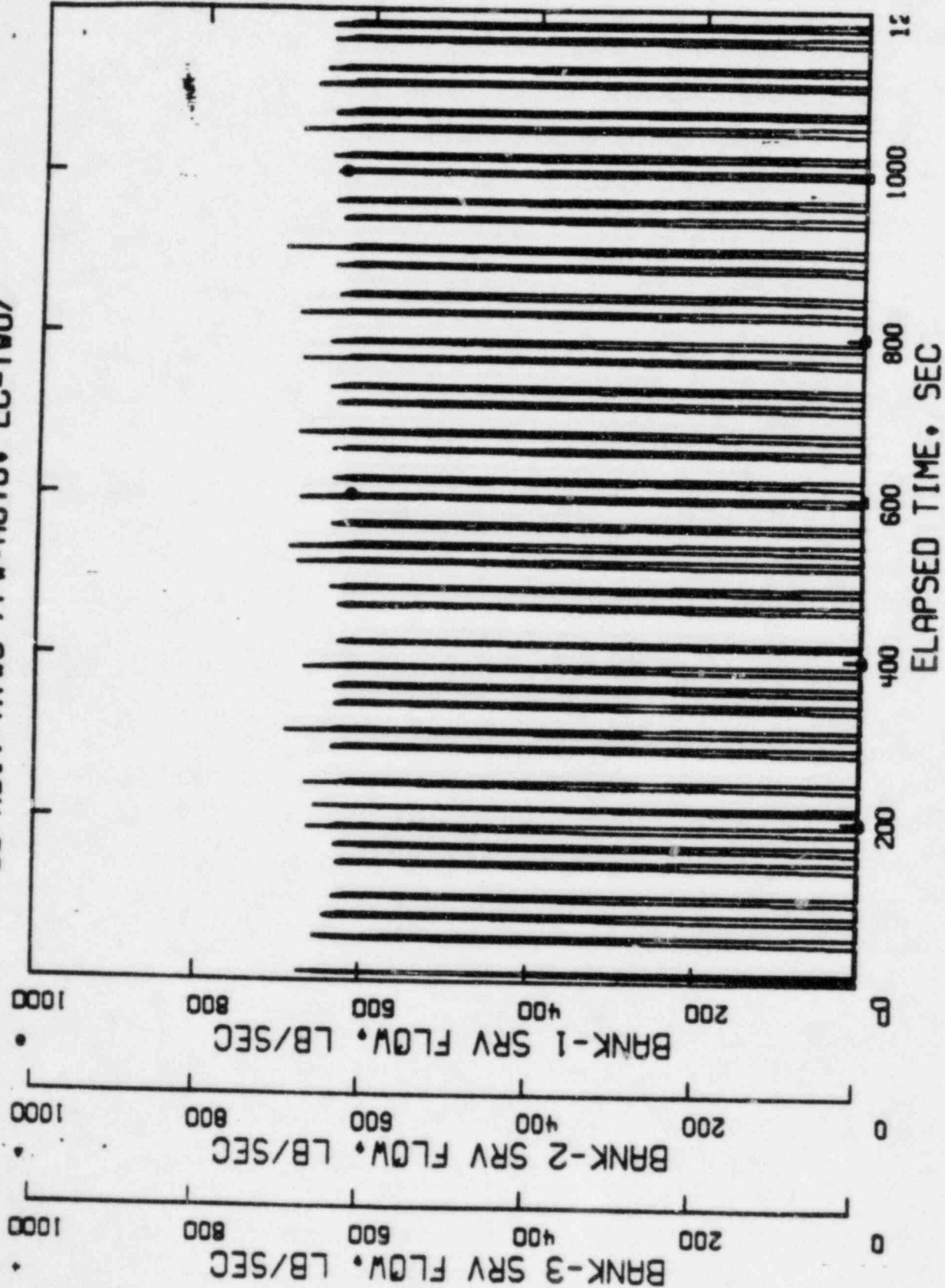


OC MSIV ATVS /FV=AUTO. EC-TWO/

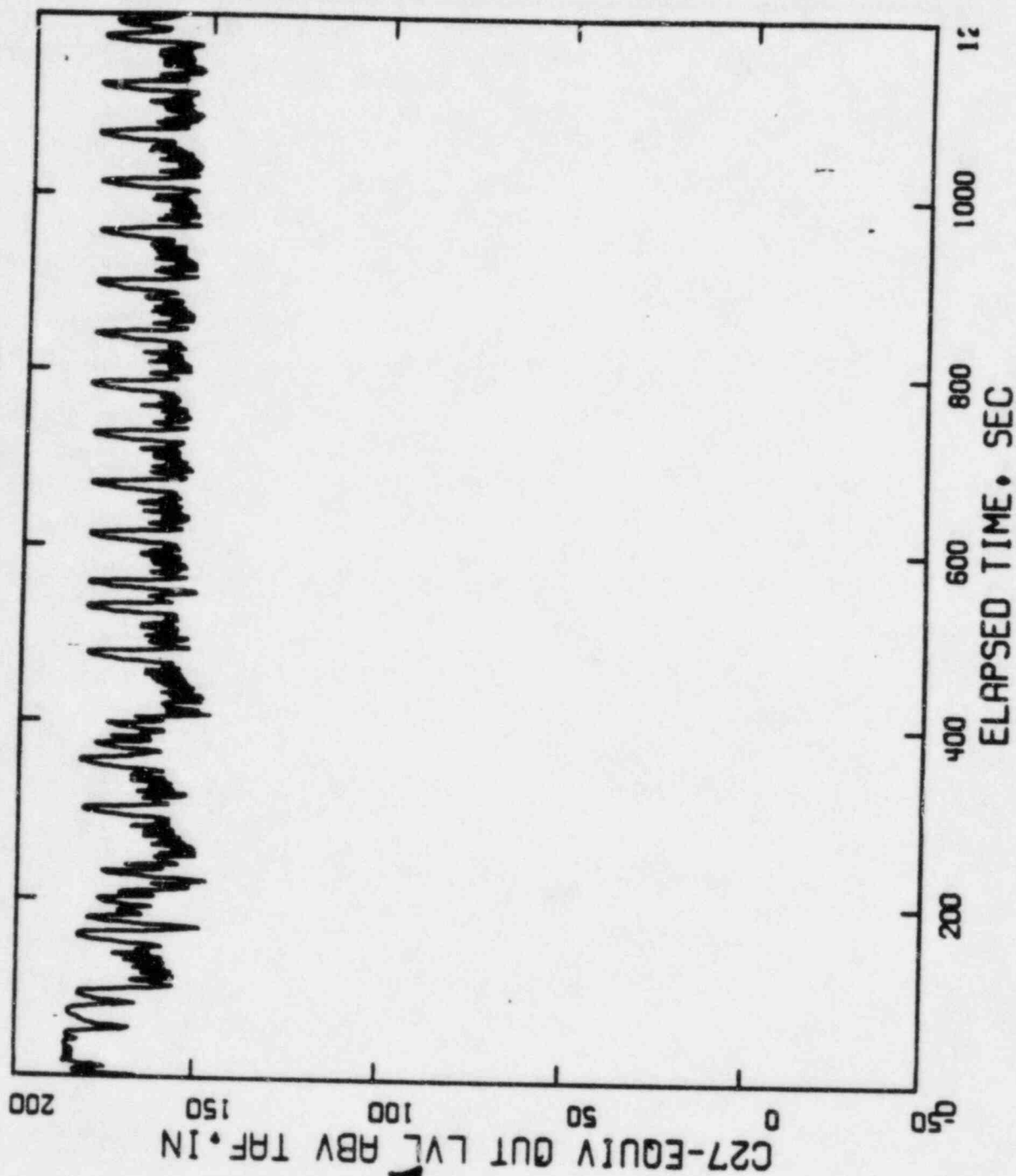


Safety and
Relief Valves
opening and
closing.

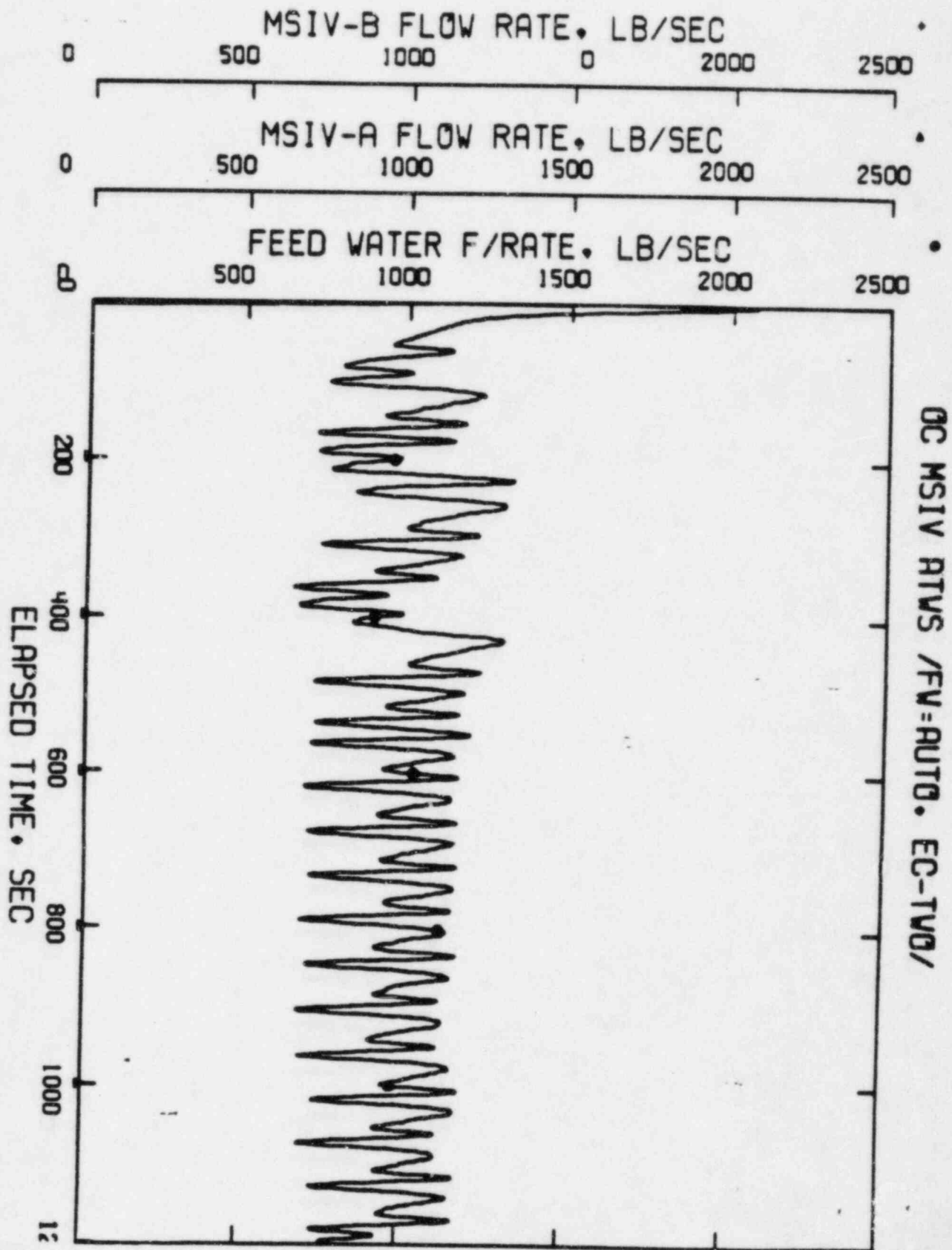
QC MSIV ATVS /FV-AUTO. EC-TVO/



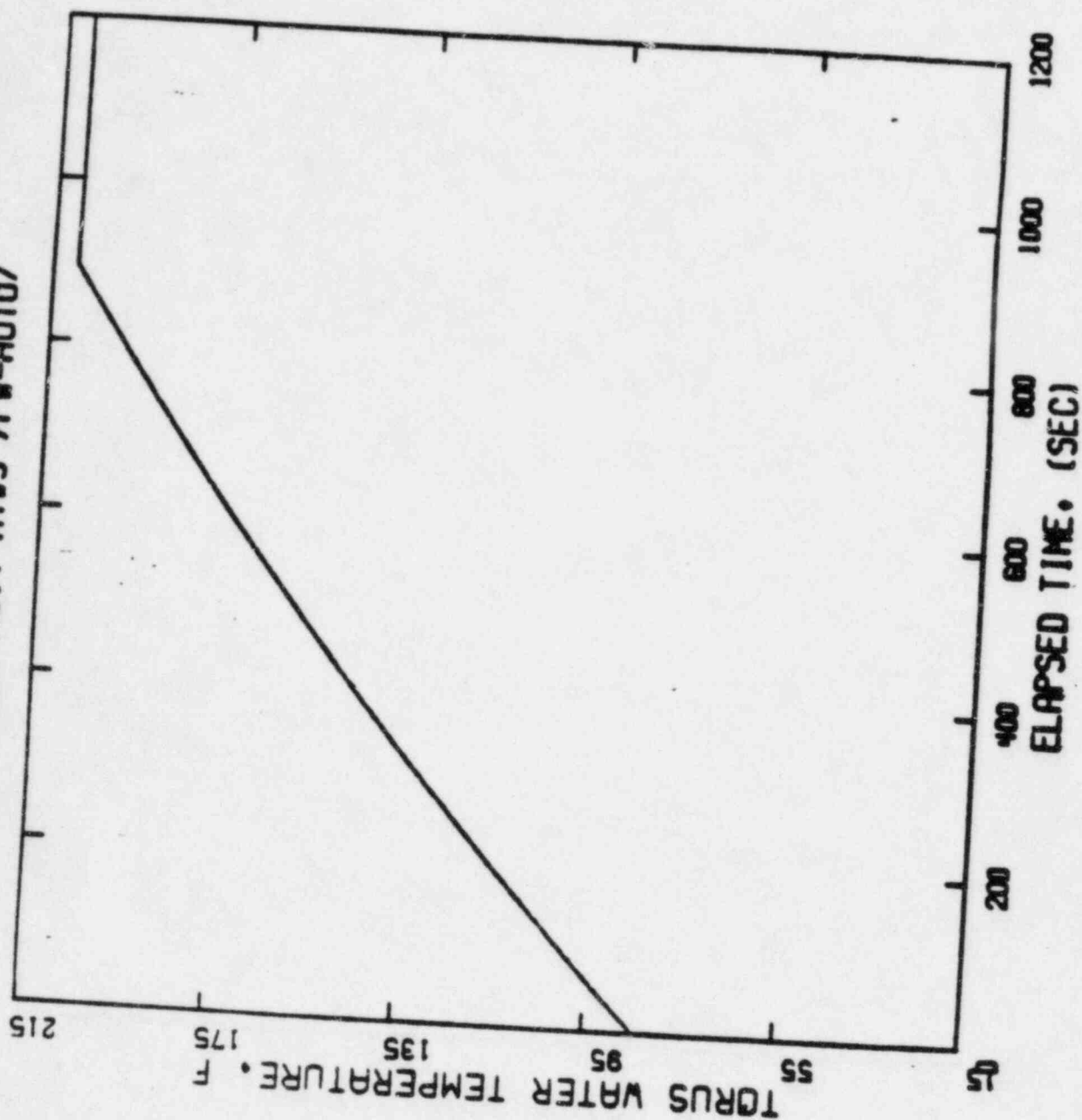
QC MSIV ATVS /FV=AUTO. EC-TVO/



Level



Feed Water
OYSTER CREEK MSIV ATVS /FW-AUTO/



OPERATOR MITIGATED MSIV CLOSURE ATWS

SEQUENCE OF EVENTS

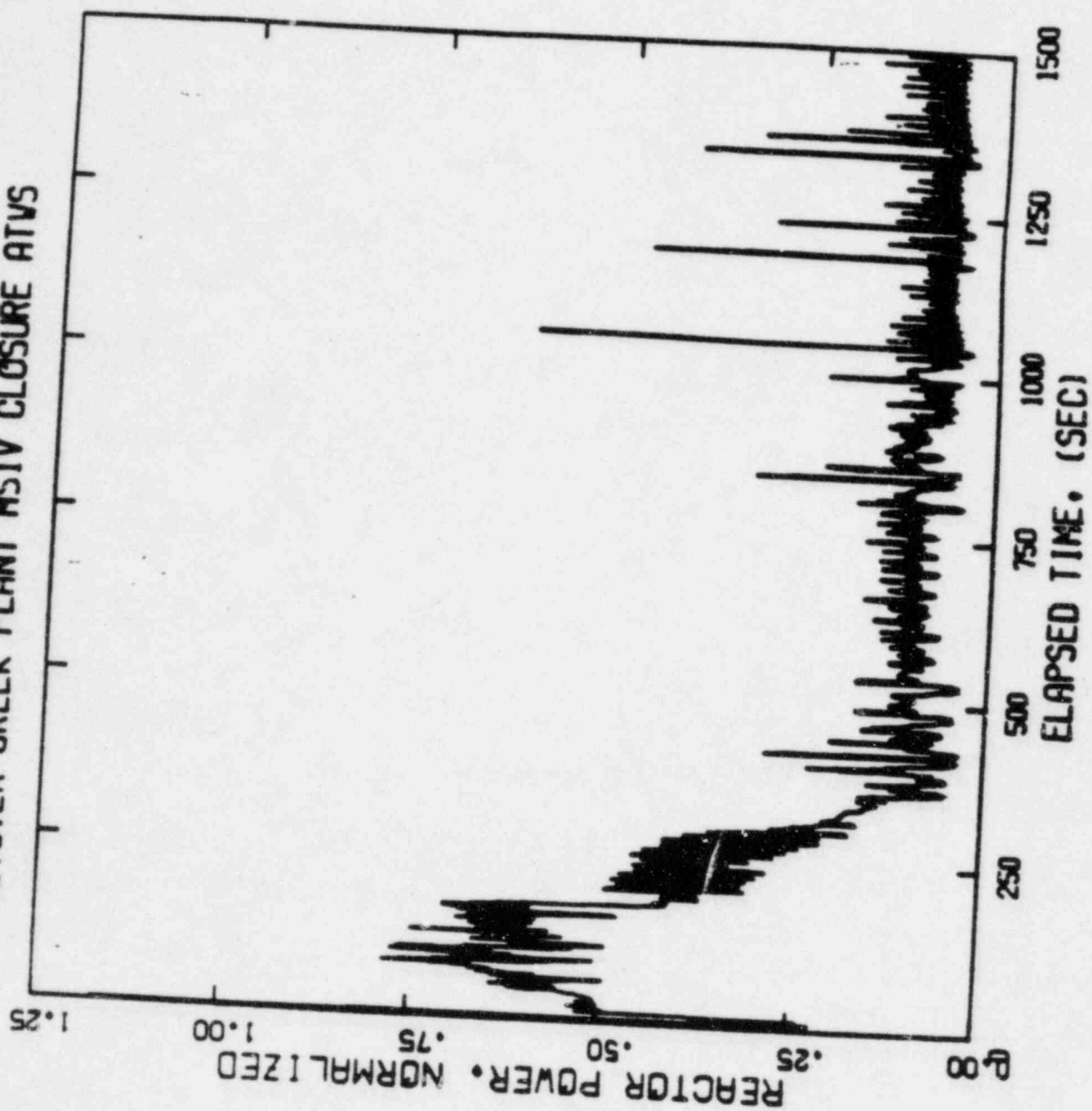
(FEEDWATER IS TERMINATED)

<u>EVENT</u>	<u>TIME / SEC</u>
MSIV closure (Initiating Event)	0.01
[Reactor would trip on high pressure]	[3.4]
Recirculation pumps trip on high pressure	3.4
EMRVs open and SVs start oscillating	3.4
Isolation condenser(s) valves open	18.4
Containment Spray Heat Exchanger #1 started by operator (90°F)	35.4
Containment Spray Heat Exchanger #2 started by operator (95°F)	67.7
* [Probable ADS signal - inhibit]	[~100]
Torus temperature of 110°F	155
1. SLCS initiated by operator	
2. * <u>Feedwater terminated by operator</u>	
Quasi Steady State	400 +
- Power approximately equals IC removal rate	
- Torus heatup negligible	
- Core sufficiently cooled	

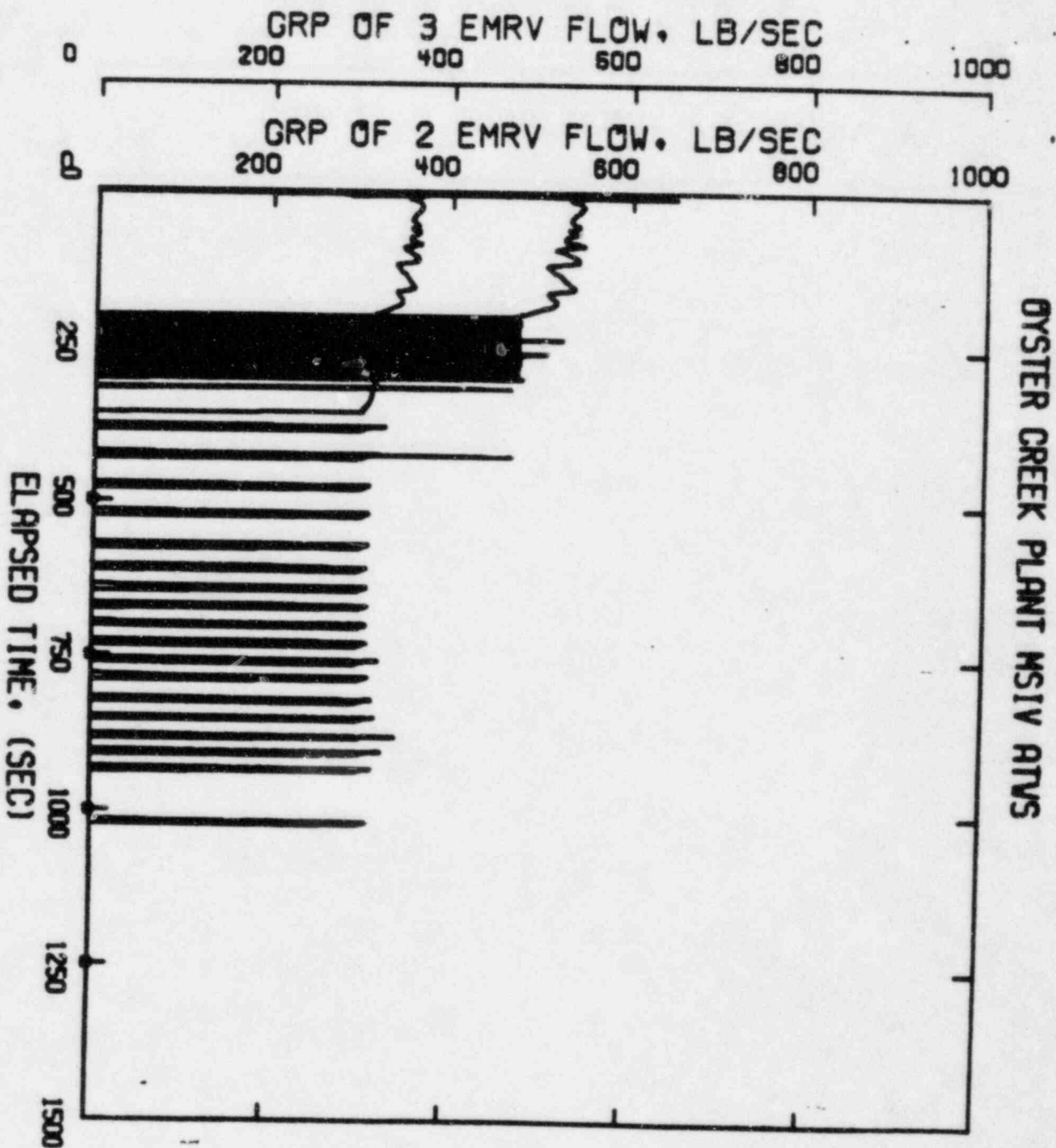
* New Steps

*Feedwater would
terminate automatically
at 180 seconds.*

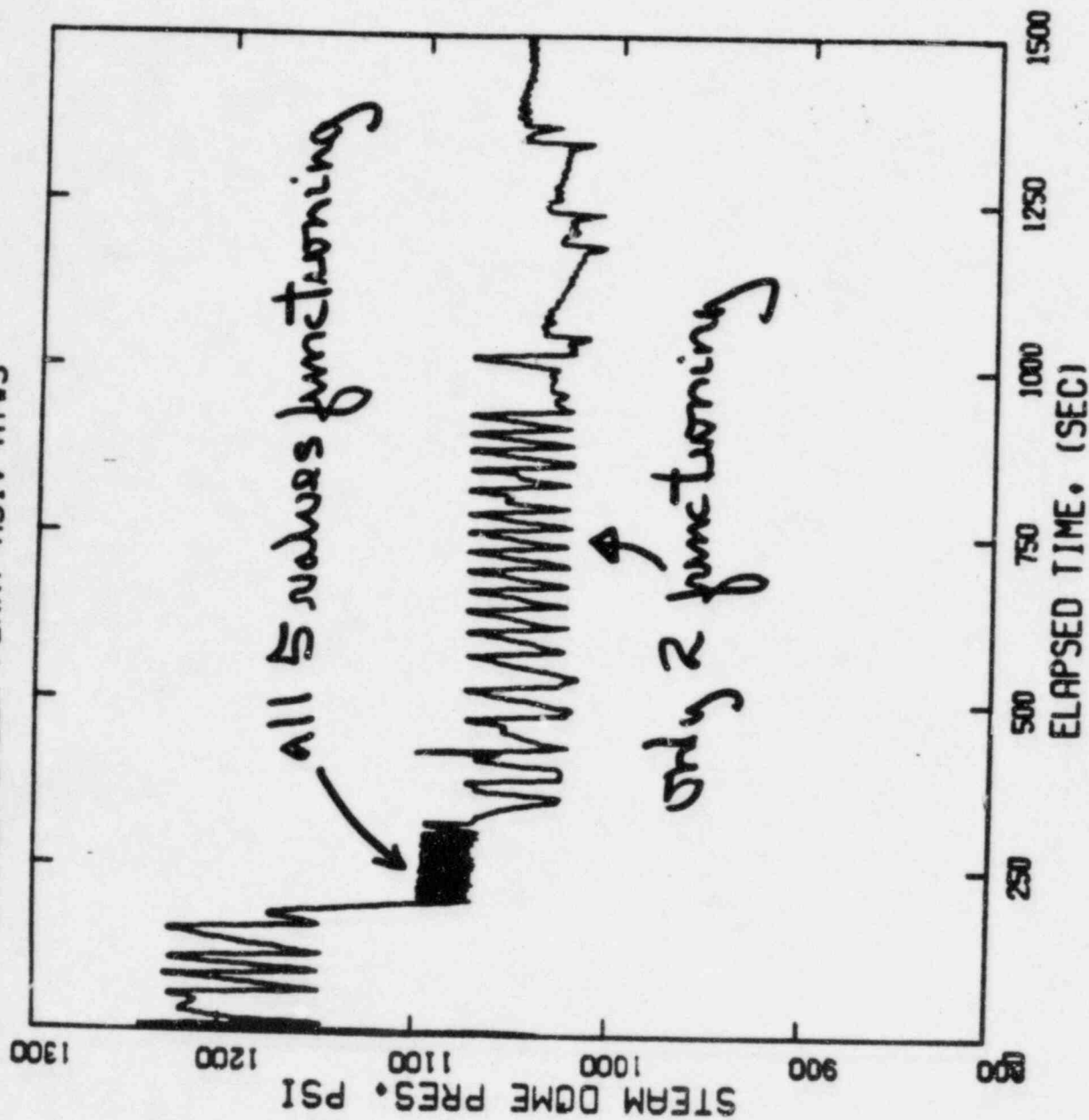
OYSTER CREEK PLANT MSIV CLOSURE ATVS



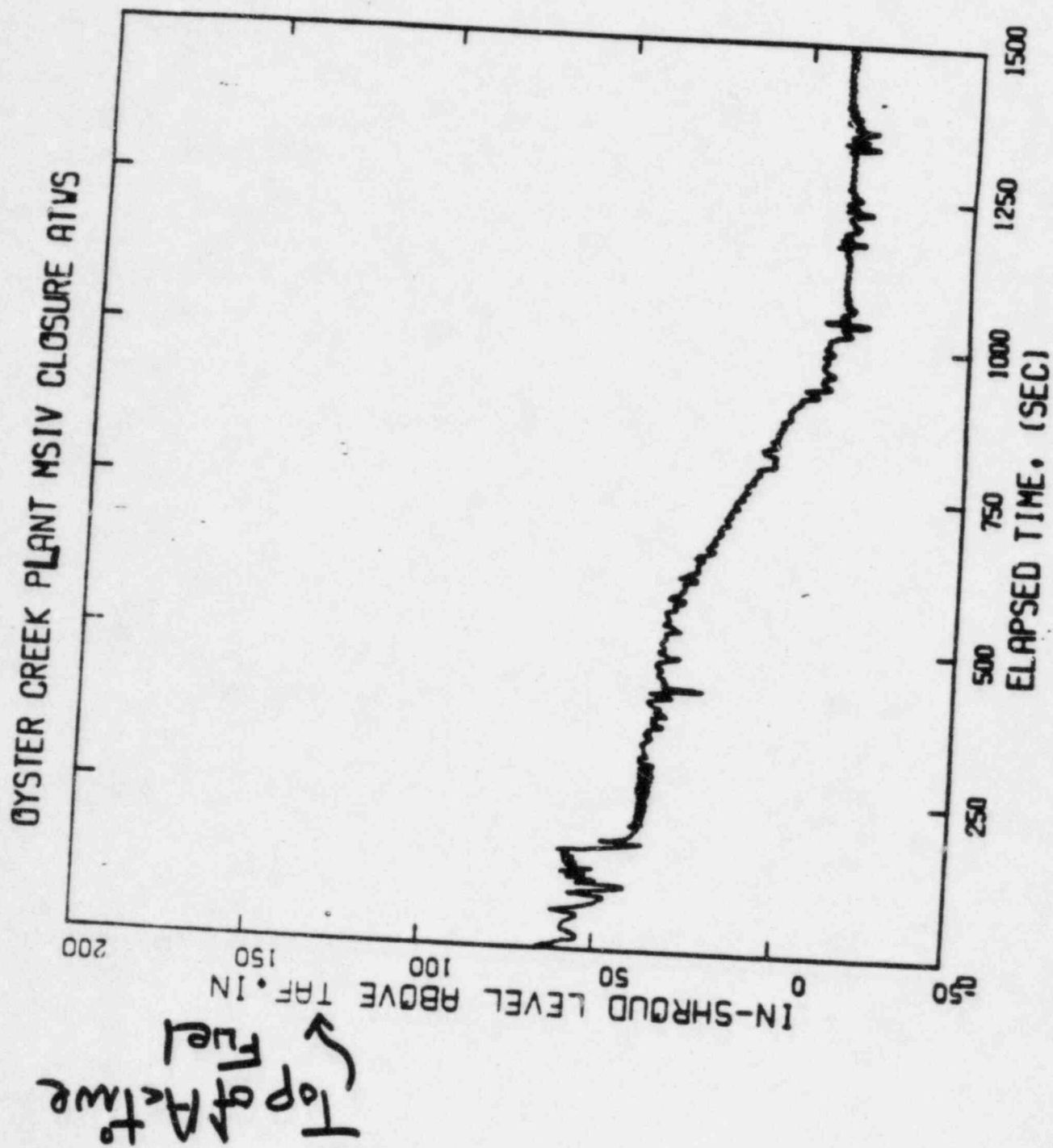
No Safety Values
Exceeding
except
in
event

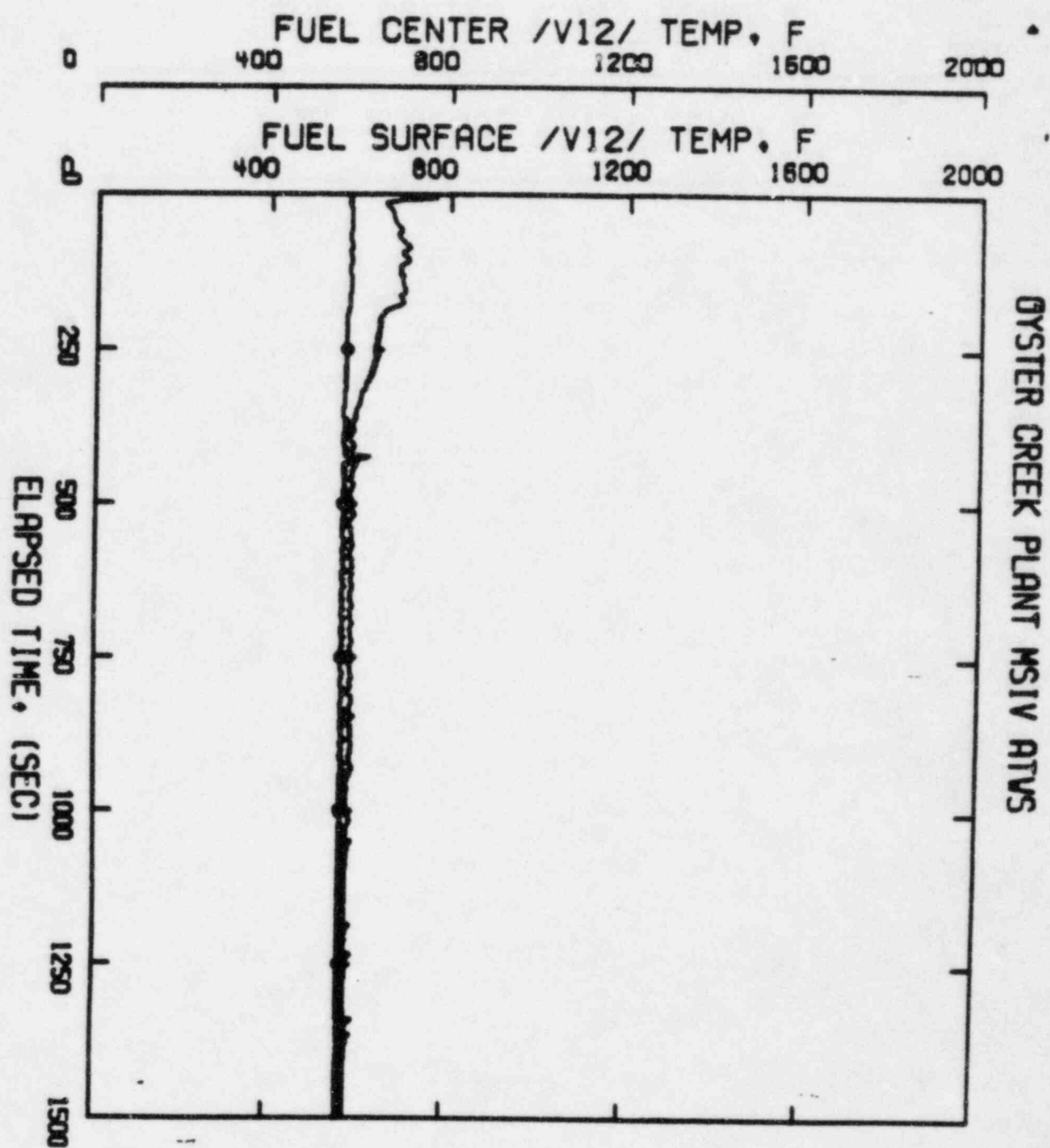


OYSTER CREEK PLANT MSIV ATVS

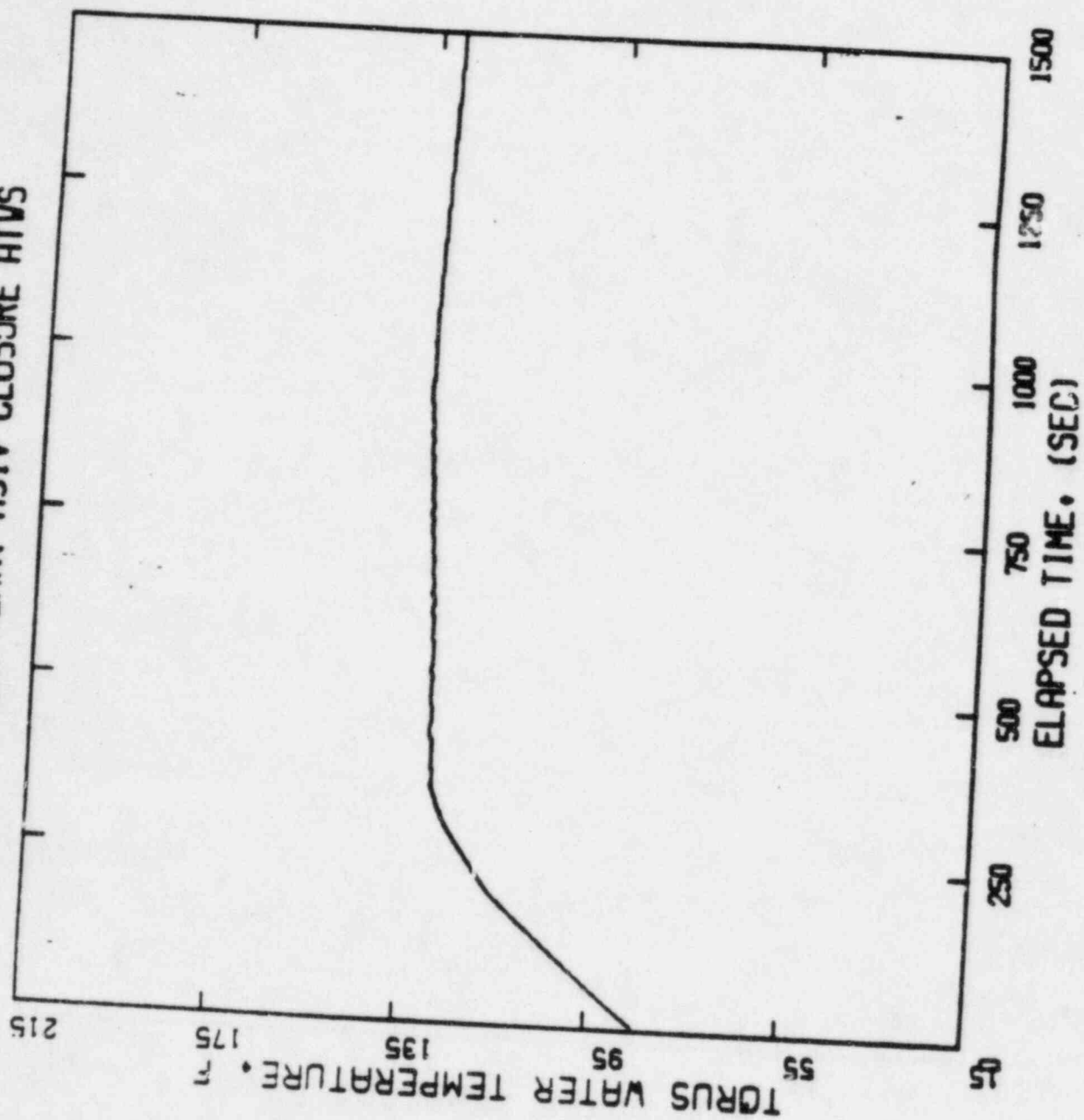


Relief
Valves
popping
until
Time >
1000 sec.



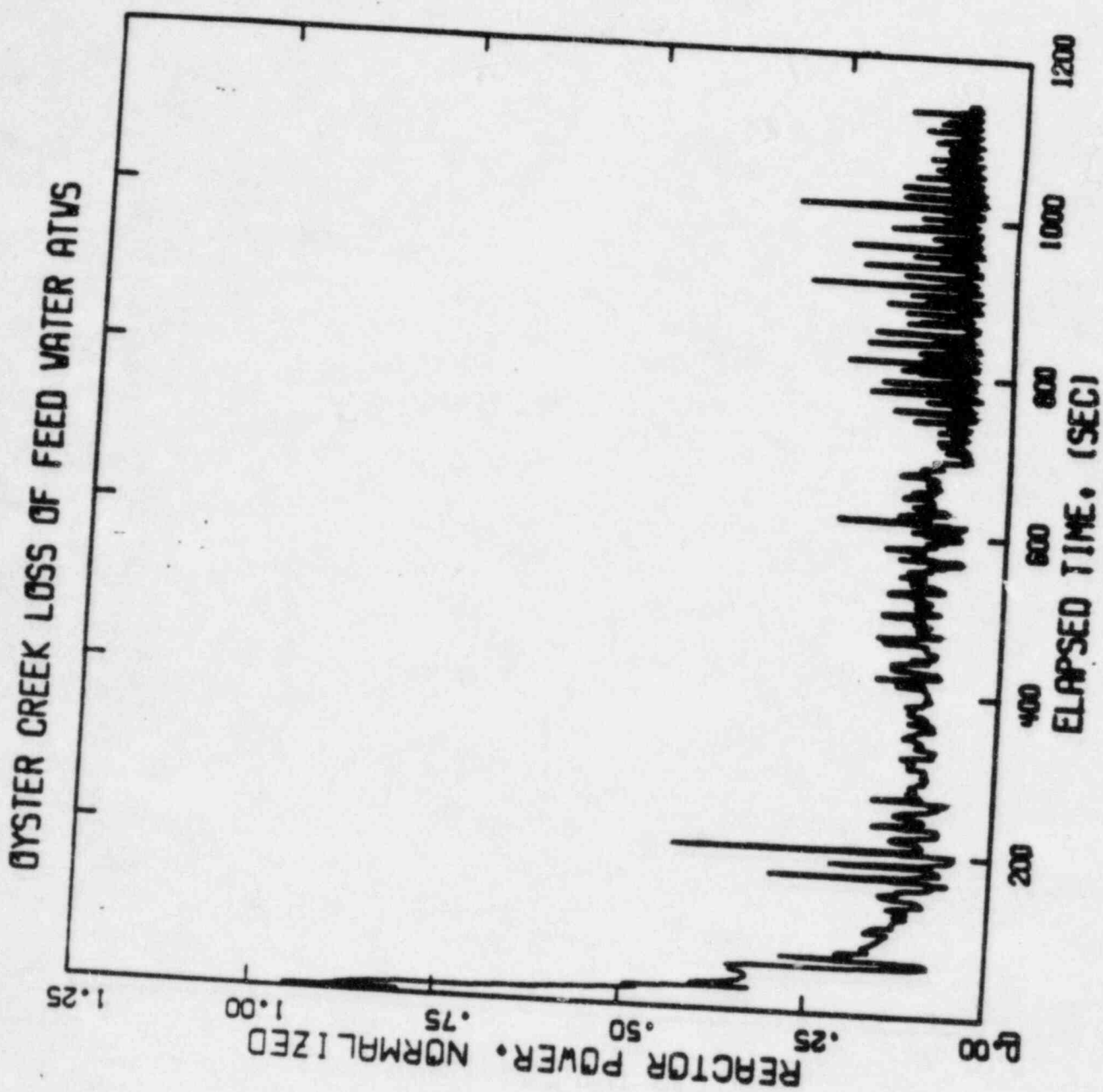


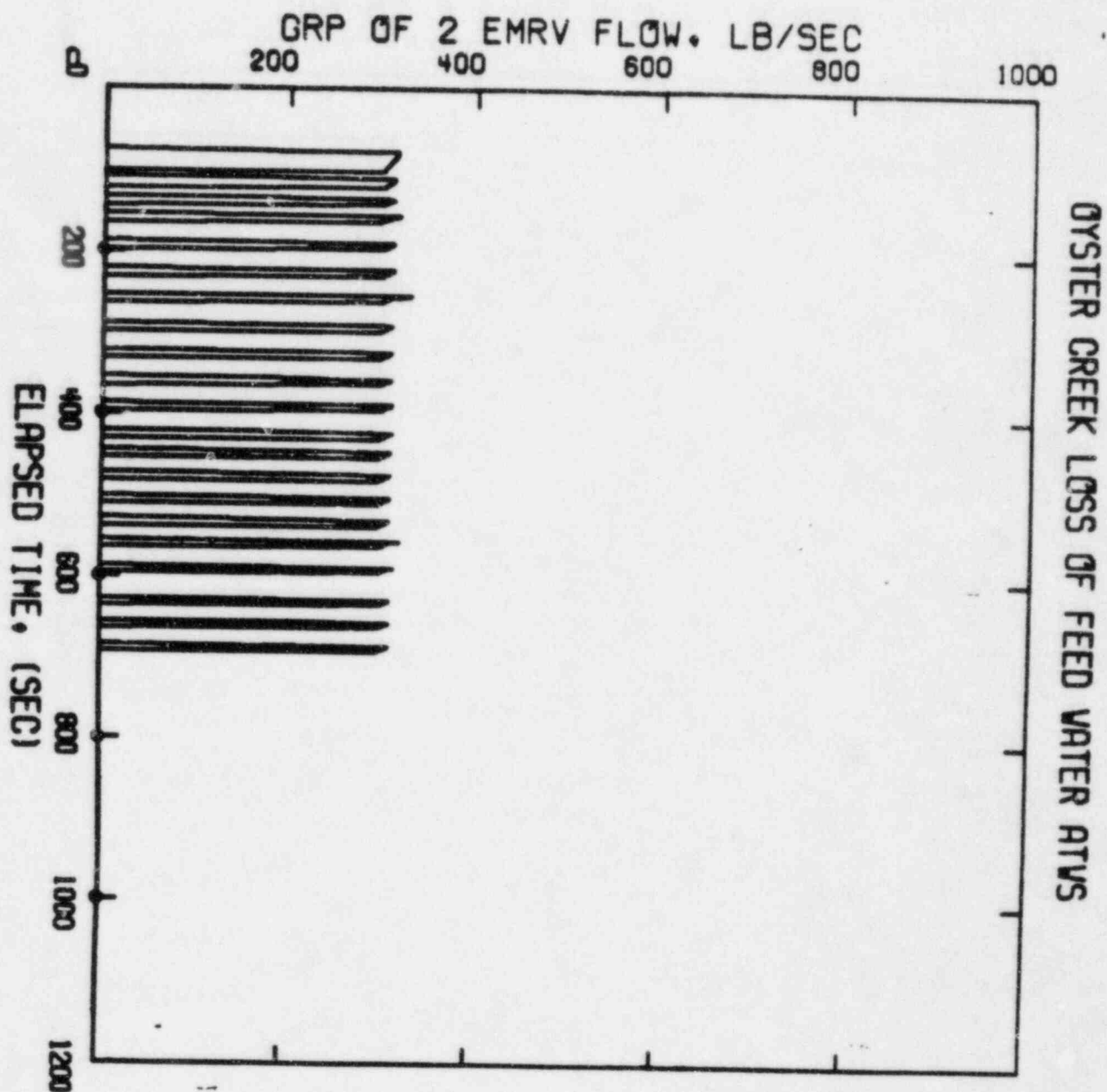
OYSTER CREEK PLANT MSIV CLOSURE ATVS



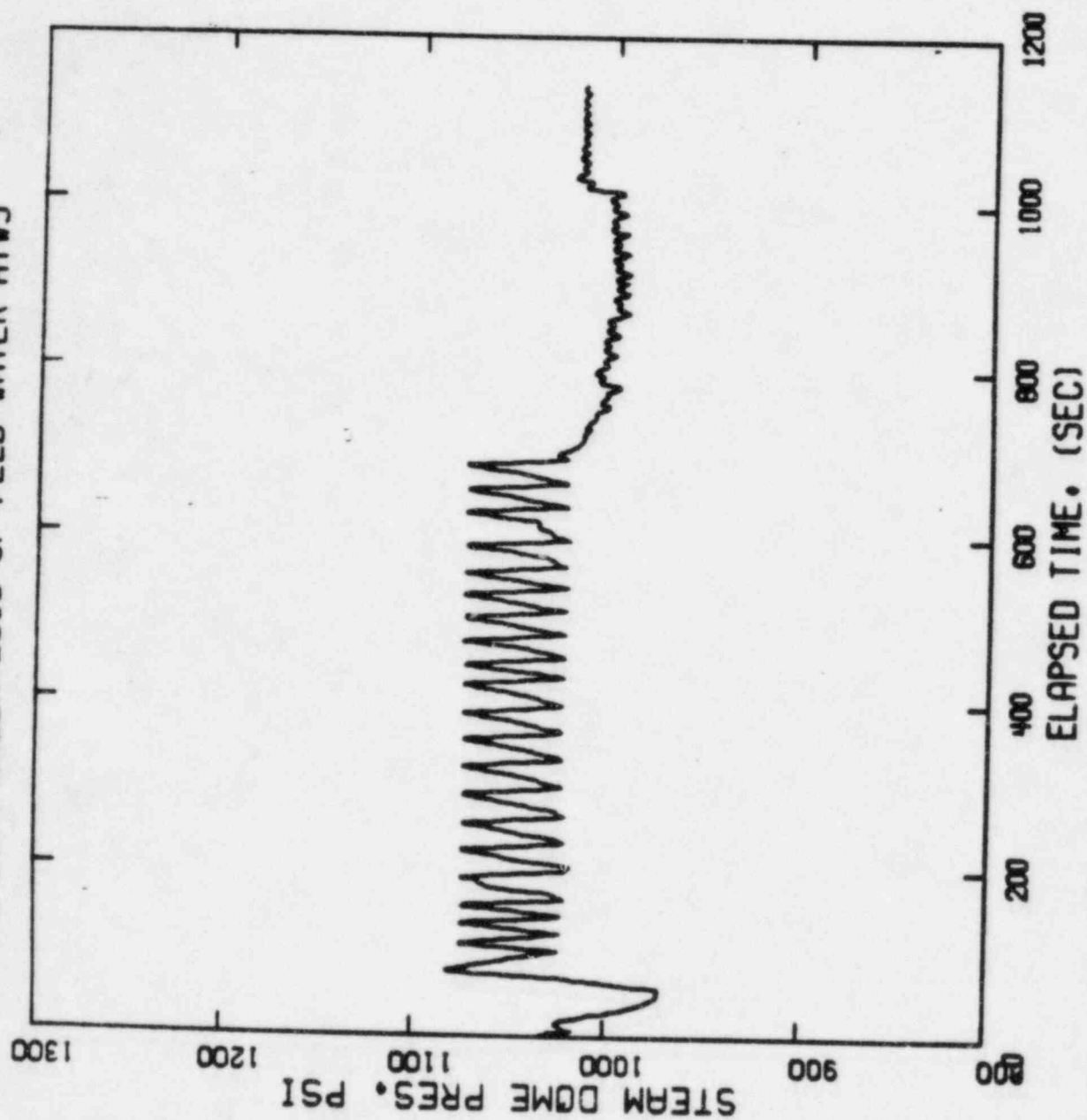
LOSS OF FEEDWATER ATWS SEQUENCE OF EVENTS

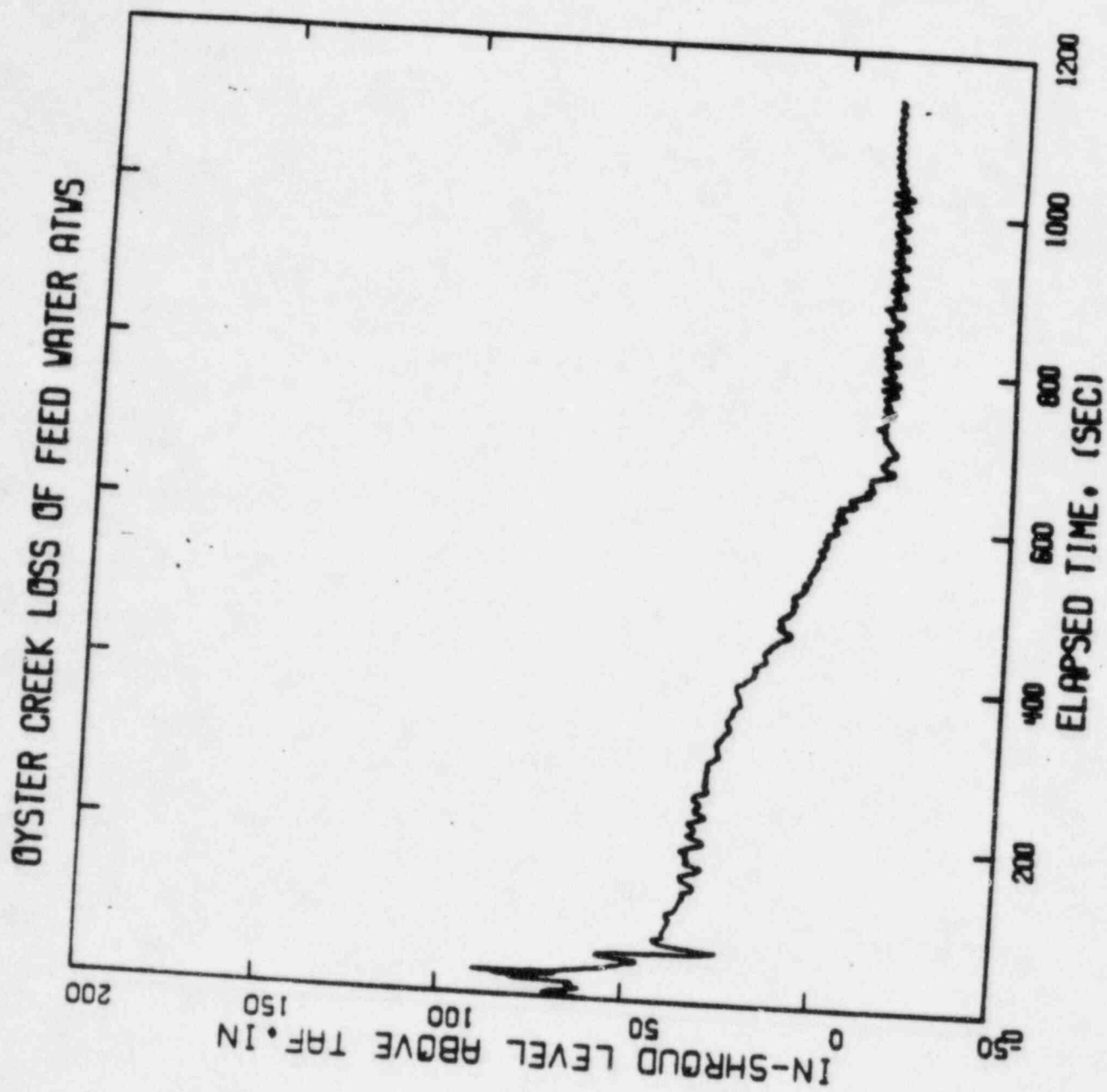
<u>EVENT</u>	<u>TIME / SEC</u>
Feedwater Pumps Trip (Initiating Event)	0.1
[Reactor Would Trip on Low Level]	[12.5]
Recirculation Pumps Trip on Low-Low Level	61.9
MSIVs Close on Low-Low Level	61.9
Isolation Condenser(s) Valves Open	64.9
2 EMRVs Start Oscillating	81.5
Quasi Steady State	400 +
- Power Approximately Equals IC Removal Rate	
- Core Sufficiently Cooled	

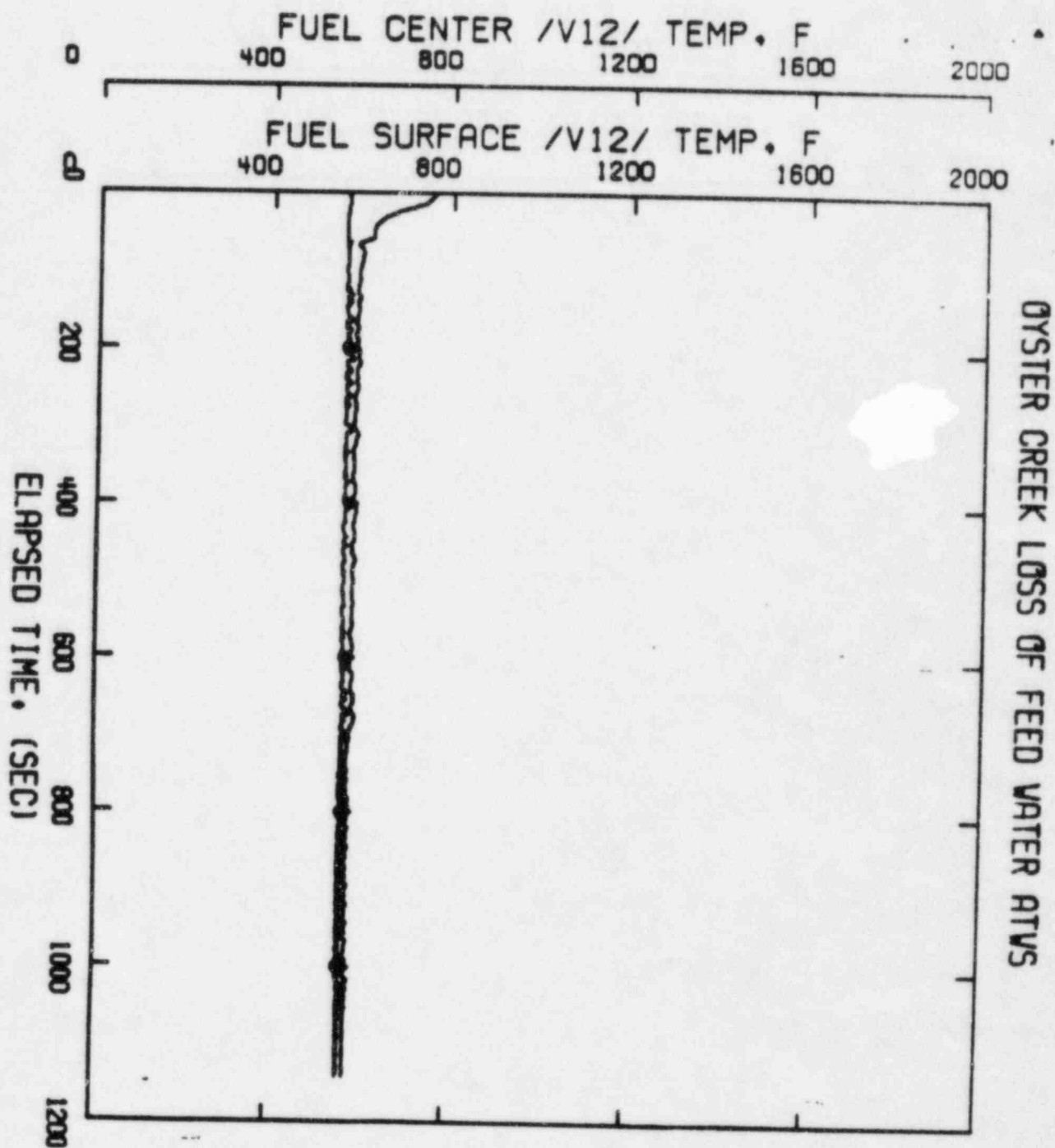


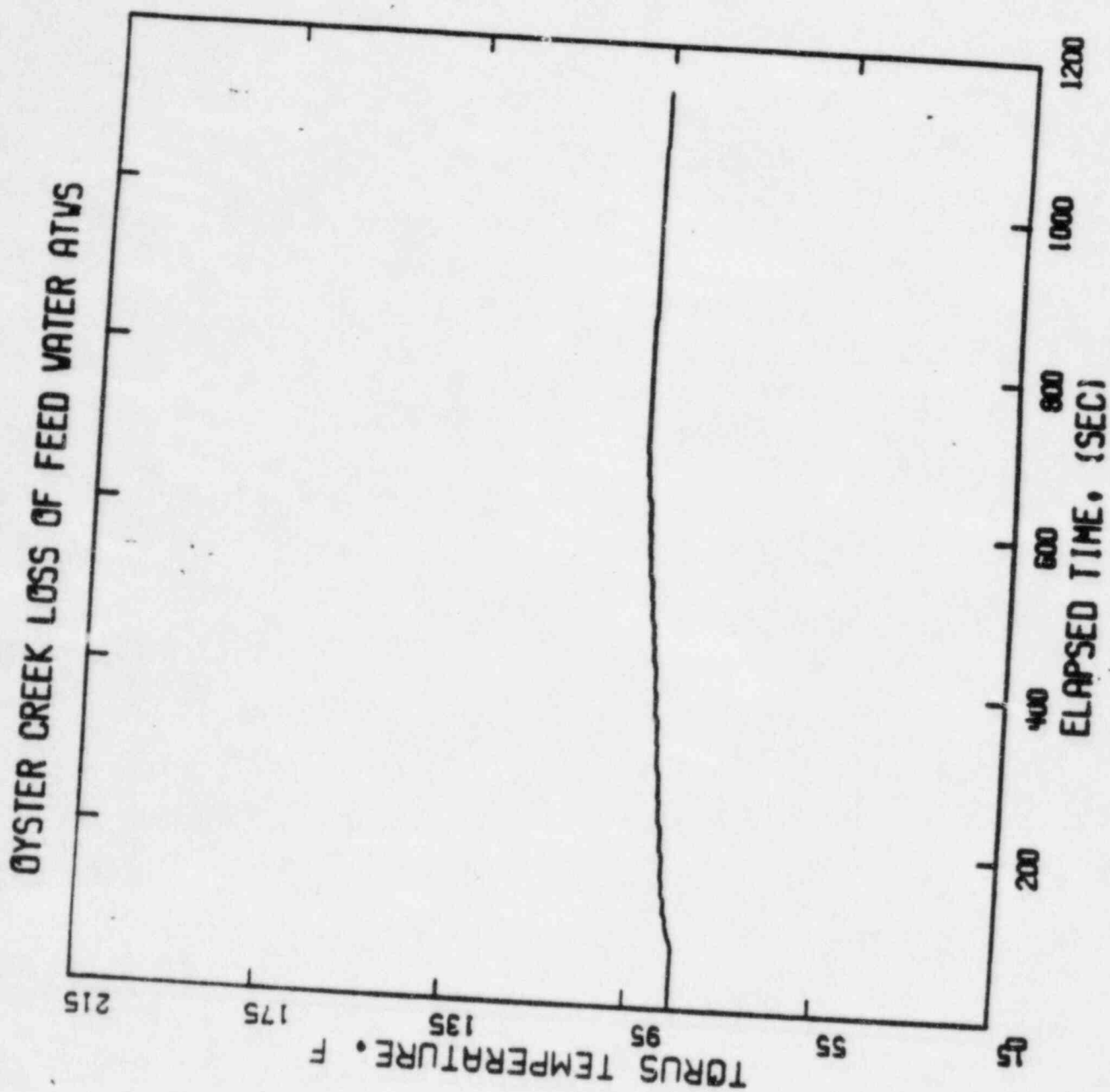


OYSTER CREEK LOSS OF FEED WATER ATWS







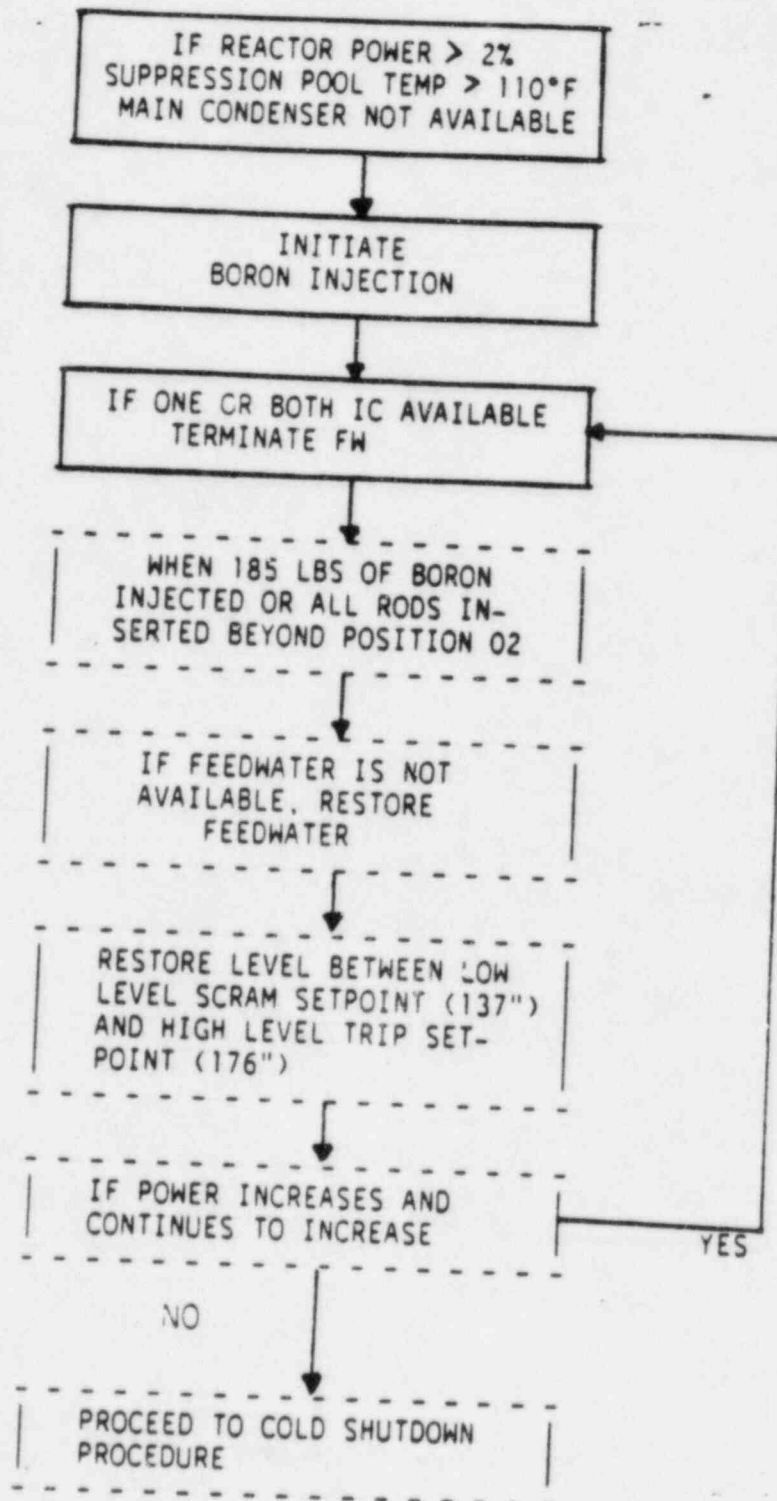


RESULTS

- ° TWO ICS CONTROL ATWS UNTIL BORON BECOMES EFFECTIVE

- ° CORE REMAINS COOLED

OVERVIEW OF OC ATWS GUIDELINES



FUTURE WORK

- ANALYSIS TO INCLUDE BORON FEEDBACK
- CODE-TO-CODE VERIFICATION
 - RETRAN - 1D KINETICS
 - RAMONA - 3D KINETICS
- ASYMMETRY AND LOW POWER CONSIDERATIONS
- INTEGRATE EOPs
 - INTERFACE WITH NON-ATWS EOPs *
 - INCLUDE MULTIPLE FAILURES (LOCA, LOSS OF ICs, ETC).

↑
Isolation
Condensers

* normally you do not want to allow relief valves to cycle because this leads to failure of these valves.