NORTHEAST UTILITIES

THE CONNECTICUT LIGHT AND POWER COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
HOLYOKE WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

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May 16, 1984

Docket No. 50-336
A03924

Director of Nuclear Reactor Regulation
Attn: Mr. James R. Miller, Chief
Operating Reactors Branch #3
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

References: (1) W. G. Counsil letter to J. R. Miller, dated October 12, 1983.

(2) J. R. Miller letter to W. G. Counsil, dated April 5, 1984.

Gentlemen:

Millstone Nuclear Power Station, Unit No. 2
Additional Information to Support
Modification of the Pressurizer Level Band

Northeast Nuclear Energy Company (NNECO) made application in Reference (1) to modify the Millstone Unit No. 2 technical specifications for pressurizer level from the current requirements of ±5% of its programmed value to a band greater than or equal to 525 ft^3 but less than or equal to 1020 ft^3. With the Reference (1) application, NNECO provided the Staff with our evaluations of the proposed change with respect to 10CFR50.59, specifically as the change impacted the docketed safety analyses.

The following information is provided in response to Reference (2) wherein the Staff requested additional specific information for each transient and accident analysis affected by the proposed license amendment.

The proposed license amendment was reviewed to determine its impact, if any, on the docketed safety analyses. The change could impact both the limiting heatup and cooldown events.

The limiting heatup transients for Millstone Unit No. 2 which result in primary system pressure increases are the loss of normal feedwater and the loss of load events. In the loss of load transient, the reactor is tripped on the high pressurizer pressure signal. The higher initial pressurizer level results in a more rapid pressurization of the RCS. This causes the reactor trip to occur earlier in the transient which is advantageous to the calculation of DNB.

The loss of normal feedwater transient results in a reduction in the capability of the secondary system to remove the heat generated in the reactor core. If the reactor were not tripped during this accident, primary plant damage could possibly occur from a sudden loss of heat sink. If an alternate supply of feedwater were not supplied to the plant, residual heat following reactor trip

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would heat the primary system water to the point where water relief from the pressurizer would occur. Loss of significant water from the RCS could conceivably lead to core damage. With a higher initial pressurizer water level, there is less available steam space to fill in the pressurizer.

Both of these events were analyzed and documented in the Basic Safety Report (BSR) for Millstone Unit No. 2 Cycle 4 operation. A reanalysis was performed assuming the higher initial pressurizer level of 70% for both events. The results of these analyses are attached. As was concluded in Reference (1), the increased pressurizer level does not have a significant effect on the current licensing basis results presented in the BSR.

The limiting cooldown event, steam line rupture, could be impacted by the minimum pressurizer level because of the reactor coolant system shrink associated with the uncontrolled cooldown during this event. The current licensing basis analysis for this event assumes a pressurizer level of 31% at zero power conditions. This condition bounds the miminum pressurizer level proposed in the Reference (1) license amendment proposal (35% level in MODES 1-3).

The steam generator tube rupture event was also evaluated due to the impact of pressurizer level on the response of the transient. The offsite dose consequences associated with this event increase with increasing pressurizer level due to the delay in reactor trip on low pressurizer pressure. The current licensing basis steam generator tube rupture event assumes a pressurizer level of 65%. The impact on the results of the analysis of increasing the pressurizer level to 70% has been evaluated. There are no significant changes in the results of the docketed steam generator tube rupture event for Millstone Unit No. 2 due to the proposed 5% increase in maximum pressurizer level.

The results of the reevaluation of the small break loss-of-coolant-accident were presented in Reference (1).

There is no impact on the remaining licensing basis transients and accidents as a result of the proposed change to the pressurizer level band.

We trust you find this information fulfills the Reference (2) request, and is sufficient to issue the pending amendment request.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

W. G. Counsil
Senior Vice President

Docket No. 50-336

Attachment

Millstone Nuclear Power Station, Unit No. 2

Loss of Load

Loss of Normal Feedwater

Analysis Results at Pressurizer Level of 70%

May, 1984

TABLE 1

COMPARISON OF RESULTS FOR LOSS OF LOAD
BEGINNING OF LIFE

EVENT	BSR	CURRENT EVALUATION
High Pressurizer Pressure Trip Signal Reached	6.4 seconds	5.3
Minimum DNBR occurs	*	*
Maximum RCS Pressure Reached	2573 psia	2581 psia
Maximum Steam Generator Pressure Reached	1064 psia	1063

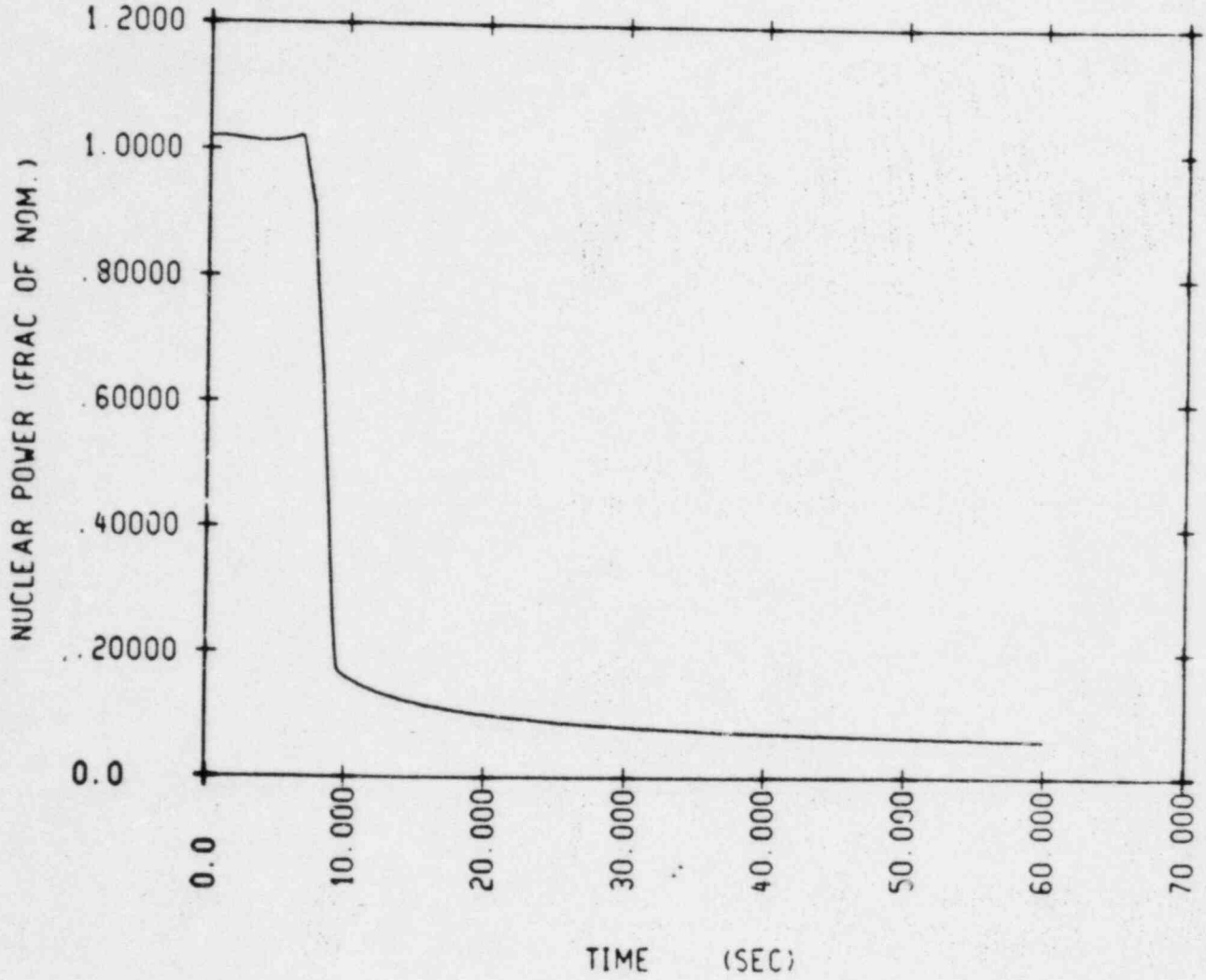
*DNBR never falls below its initial value.

TABLE 2

COMPARISON OF RESULTS FOR LOSS OF LOAD
END OF LIFE

EVENT	BSR	CURRENT EVALUATION
High Pressurizer Pressure trip Signal Reached	6.4 seconds	5.2
Minimum DNBR Occurs	*	*
Maximum RCS Pressure Reached	2573 psia	2569 psia
Maximum Steam Generator Pressure Reached	1064 psia	1062 psia

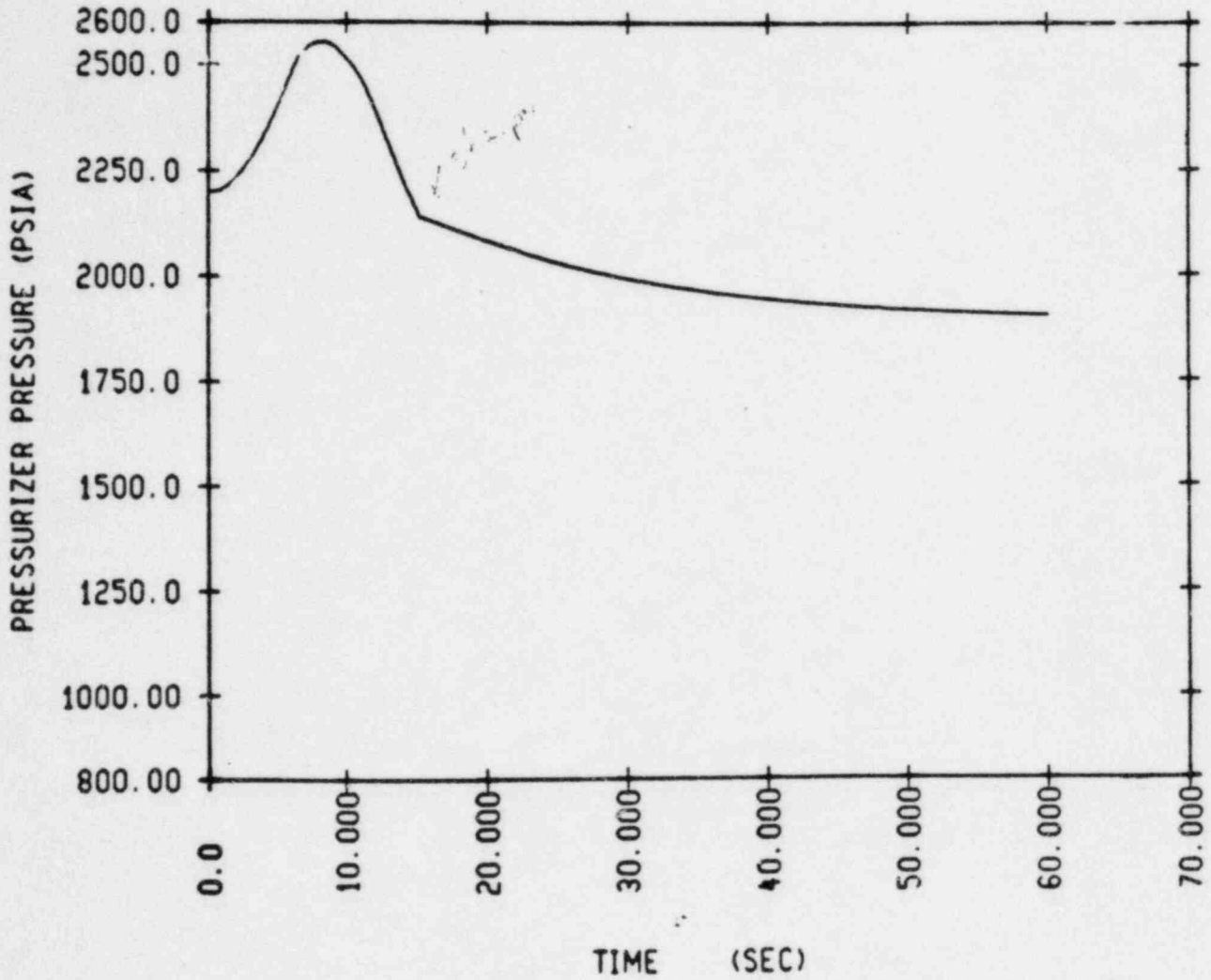
*DNBR never falls below its initial value.



Loss of Load Incident (BOL)

TDF = 370,000 gpm

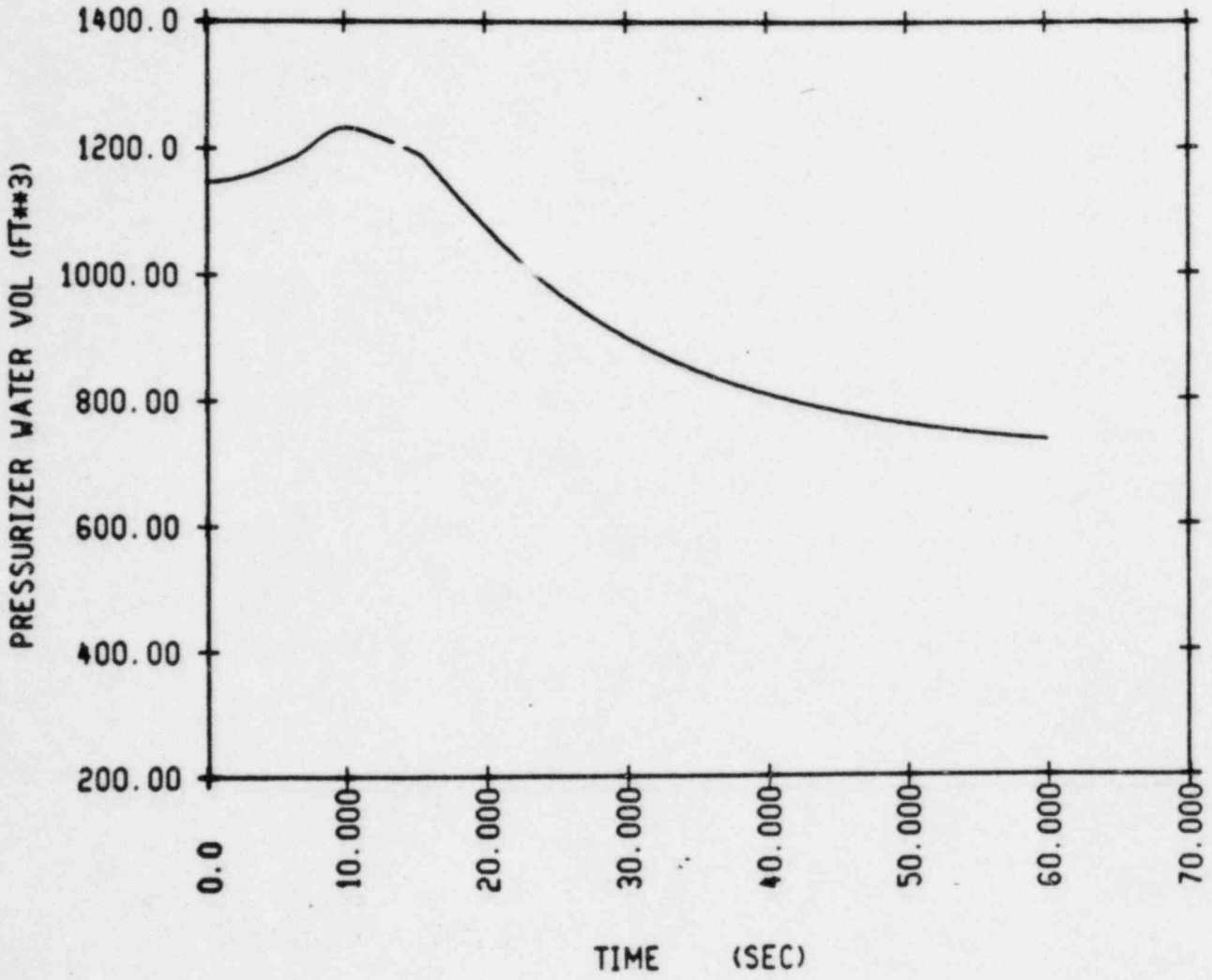
Nuclear Power VS Time



Loss of Load Incident (BOL)

TDF = 370,000 gpm

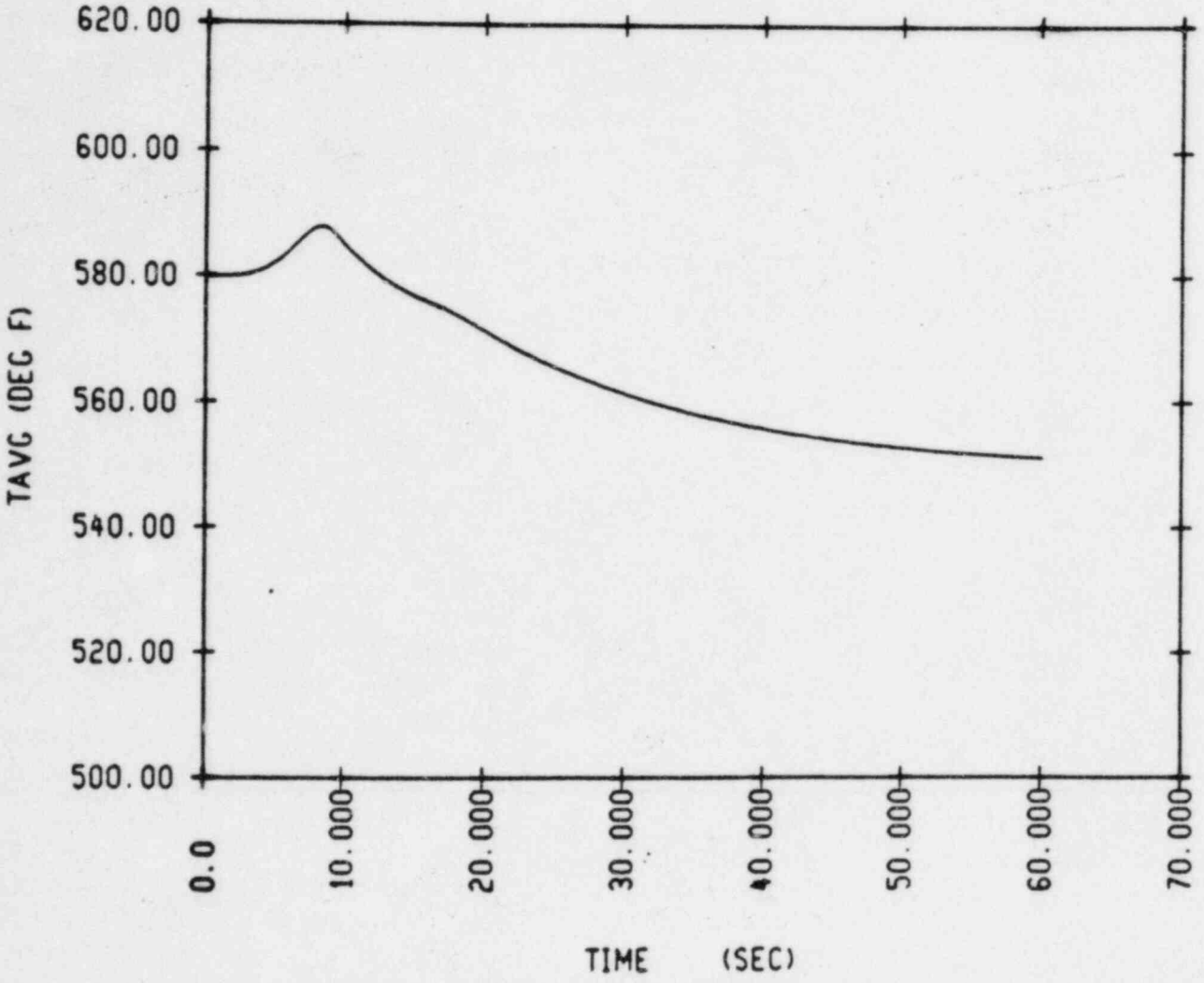
Pressurizer Pressure VS Time



Loss of Load Incident (BOL)

TDF = 370,000 gpm

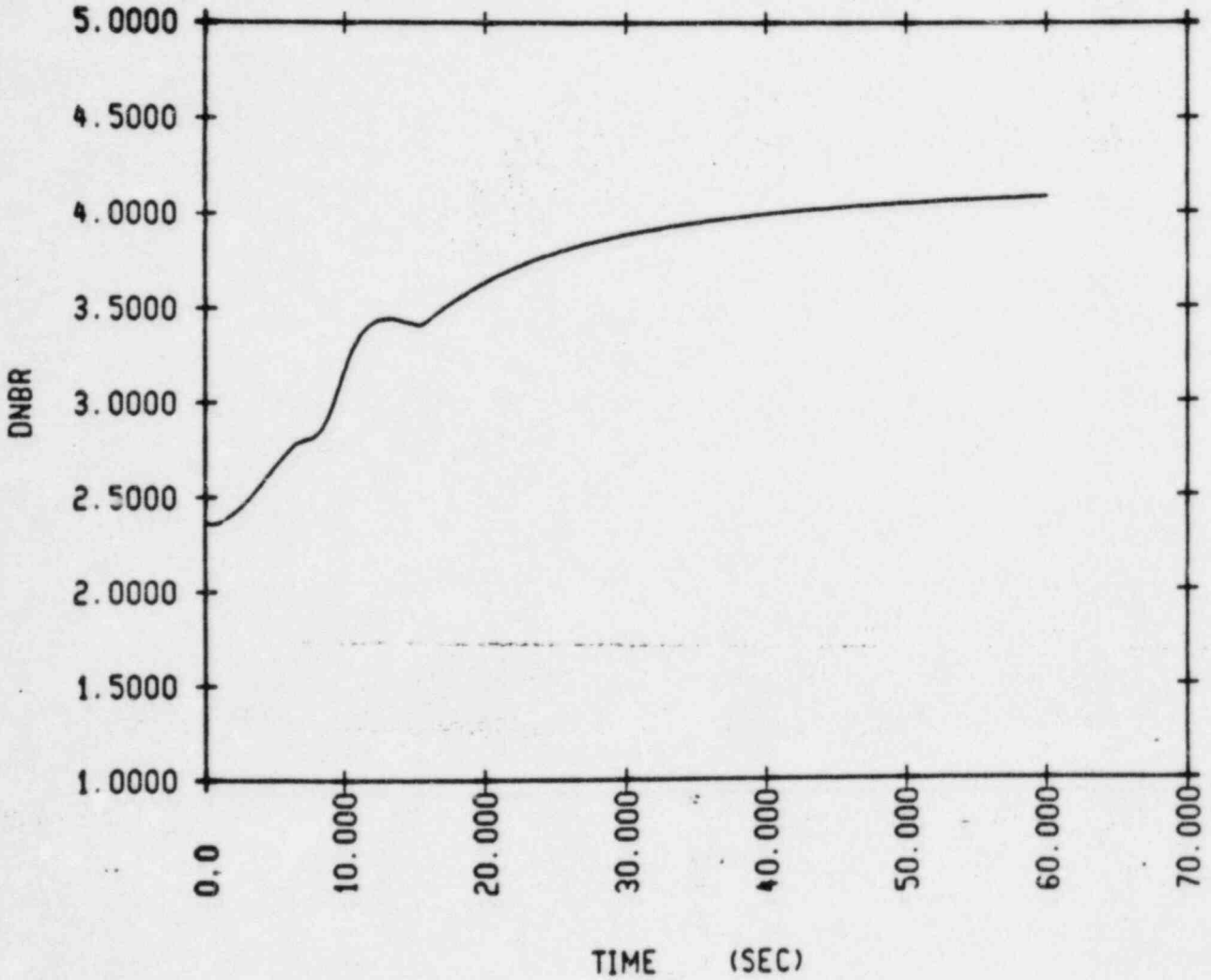
Pressurizer Water Level VS Time



Loss of Load Incident (BOL)

TDF = 370,000 gpm

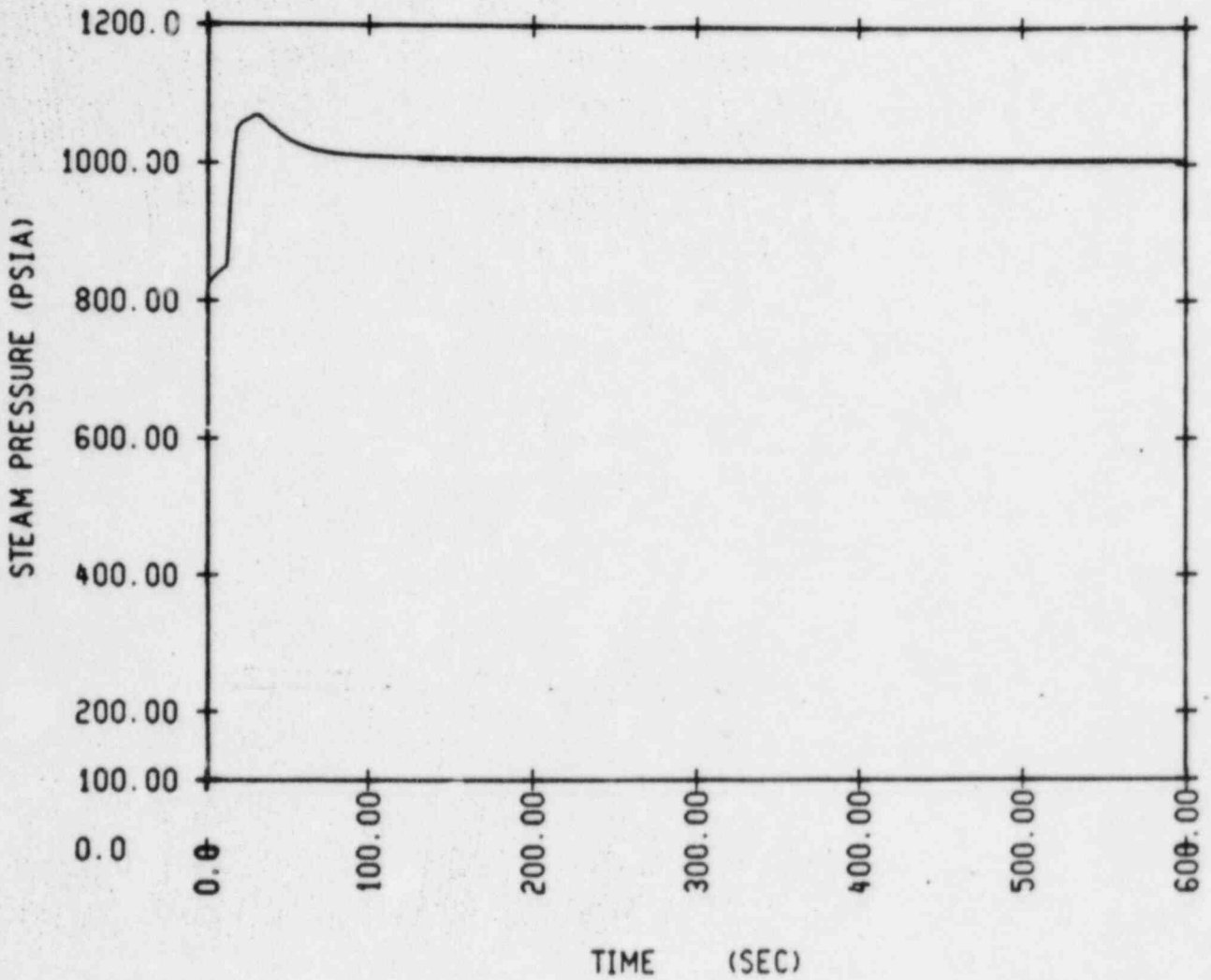
T_{AVG} VS Time



Loss of Load Incident (BOL)

TDF = 370,000 gpm

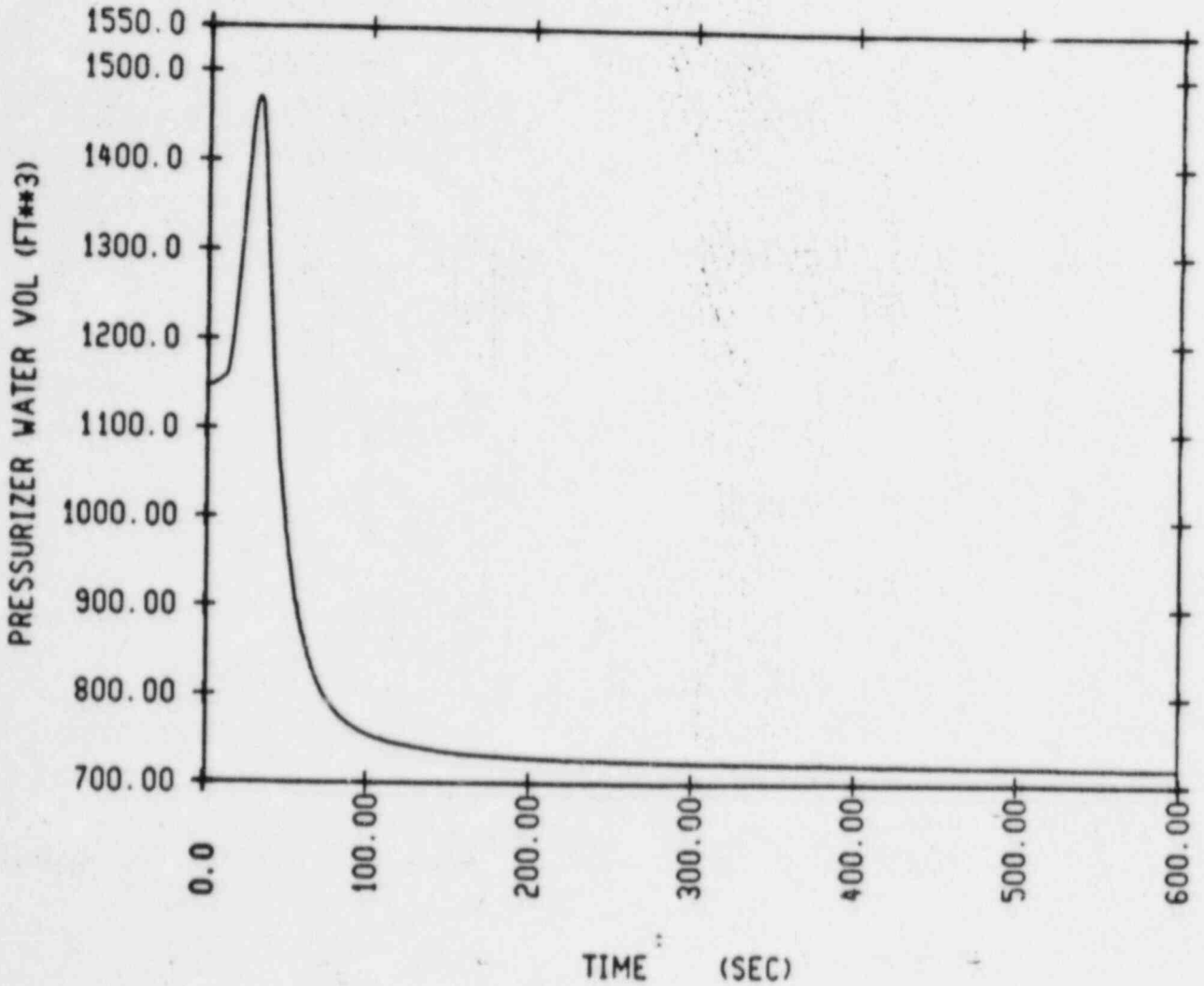
DNBR VS Time



Loss of Normal Feedwater

TDF = 370,000 gpm

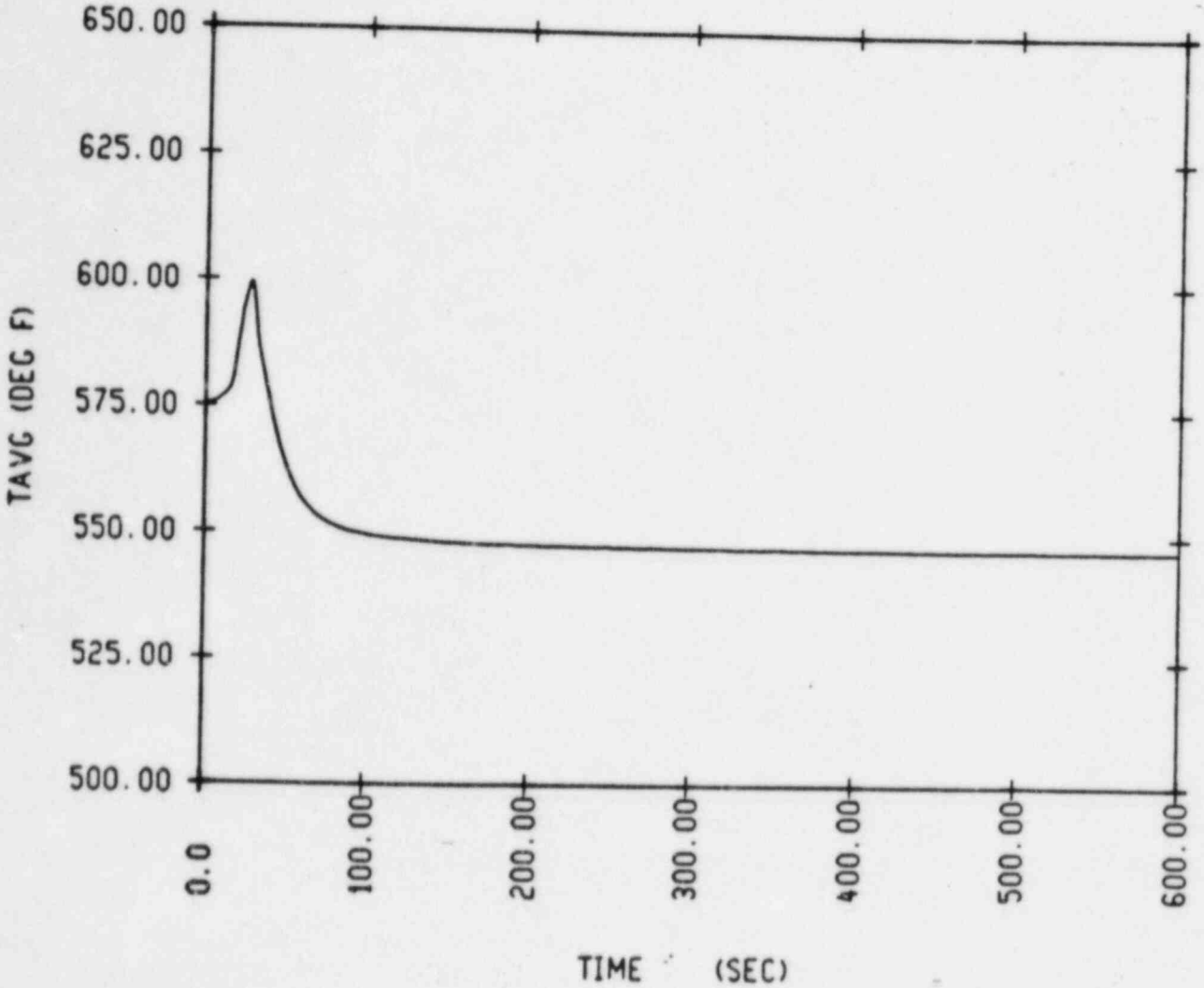
Steam Pressure VS Time



Loss of Normal Feedwater

TDF = 370,000 gpm

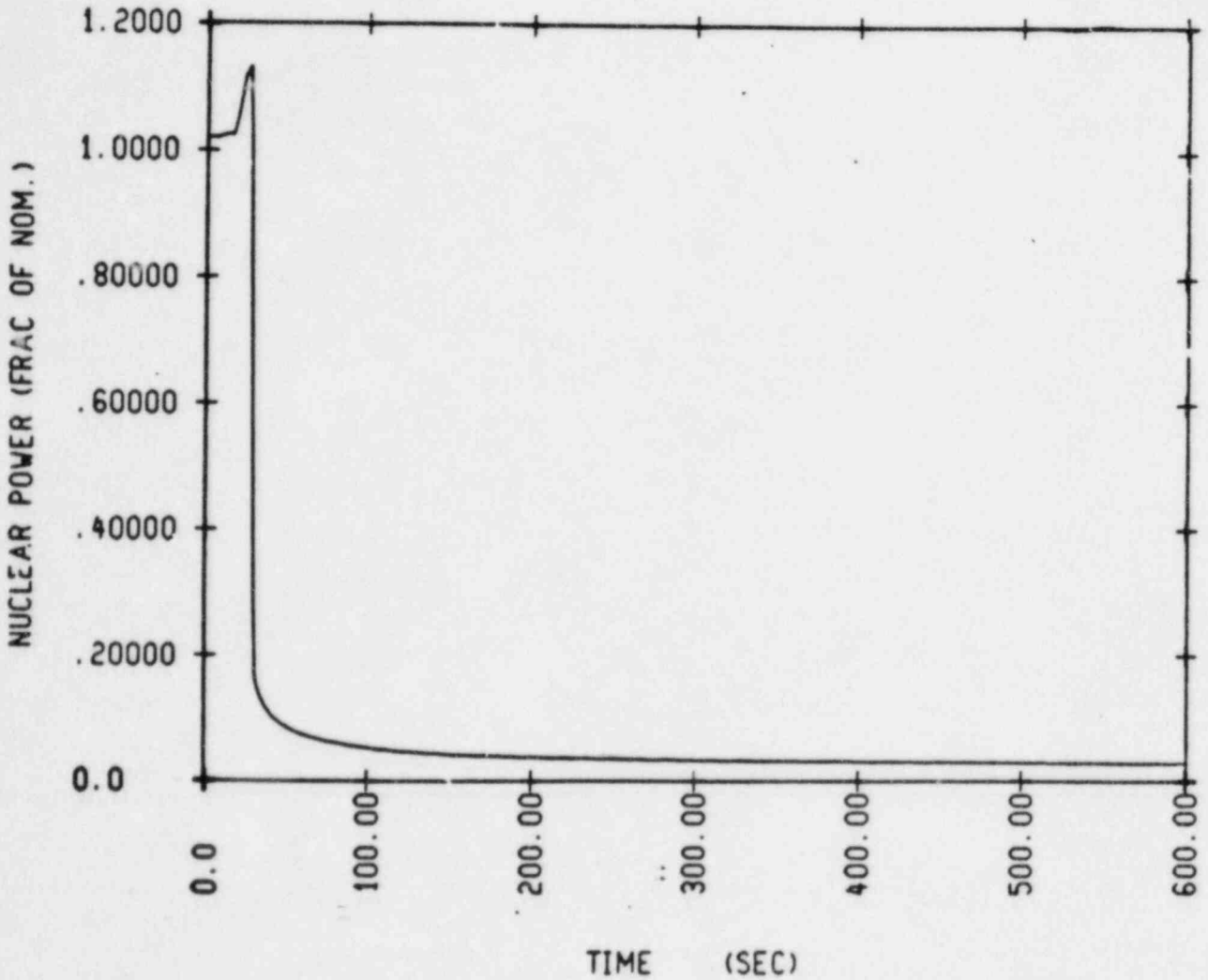
Pressurizer Water Level VS Time



Loss of Normal Feedwater

TDF = 370,000 pgm

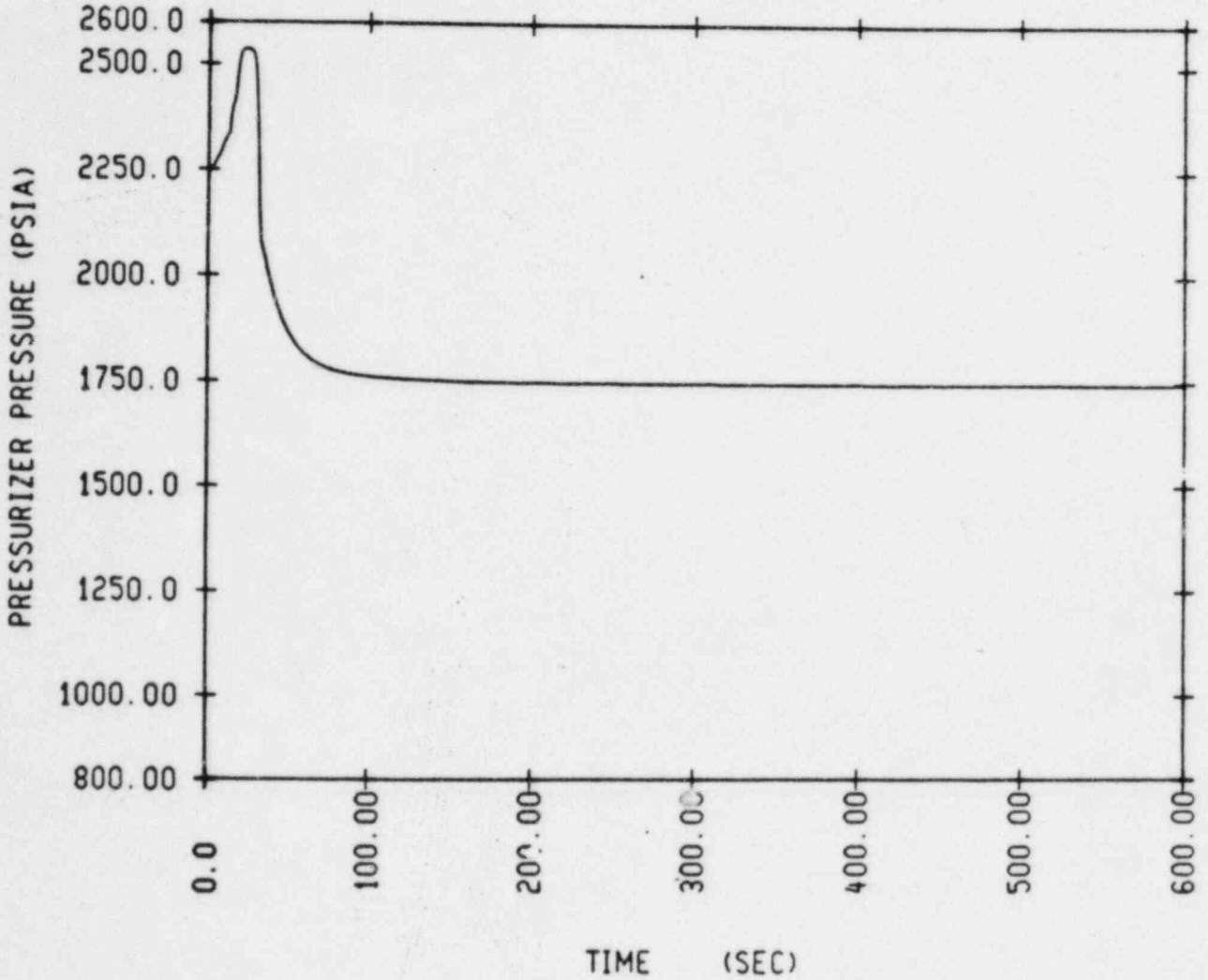
T_{AVG} VS Time



Loss of Normal Feedwater

TDF = 370,000 gpm

Nuclear Power VS Time



Loss of Normal Feedwater

TDF = 370,000 gpm

Pressurizer Pressure VS Time