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December 7, 1982
5211-82-272

Office of Nuclear Reactor Regulations
Attn: John F. Stolz, Chief
Operating Reactors Branch No. 4
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. R. C. Haynes
Region I, Regional Administrator
U. S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

Gentlemen:

Three Mile Island Nuclear Station, Unit 1 (TMI-1)
Operating License No. DPR-50
Docket No. 50-289
Reactor Coolant System (RCS) Pressure Control Following A
Loss Of Offsite Power (LOOP)

In paragraph 755 of its December 14, 1981 Partial Initial Decision (PID), the Atomic Safety and Licensing Board (ASLB), acknowledging the importance of RCS pressure in maintaining natural circulation, imposed as a pre-restart condition the requirement that Licensee demonstrate the ability to control RCS pressure using the HPI system, without relying on the pressurizer heaters. The ASLB specified that the demonstration be performed under conditions of a simulated or actual LOOP, with the RCS average temperature close to the normal operating temperature. Further, the ASLB stated that the demonstration may be done using the normal makeup and letdown system (rather than the complete HPI system) in order to avoid unnecessary wear and tear on the safety valves.

Appropriate testing was performed at TMI-1 during the hot functional testing in the fall of 1981. We believe this test is responsive to the above ASLB requirement. These tests were performed at normal plant temperature and pressure and did not use equipment to control pressure not normally available following a LOOP. (Reactor Coolant Pumps were used only to maintain RCS Temperature due to an absence of decay heat). The test performed demonstrated that pressurizer filling to control plant pressure is not of concern and therefore, the use of other than normal letdown was not necessary. In addition, extrapolating the data shows that sufficient pressure to maintain

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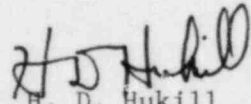
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adequate saturation margin to support natural circulation is available for a substantial time beyond two hours particularly as plant cooldown occurs. In addition, plant cooldown would tend to further increase saturation margin. It should be noted that the test length of two hours was selected, in that it is the maximum time necessary to connect certain pressurizer heaters to the onsite power system.

The detailed test procedure and results are available onsite for NRC review.

Based on the above, we request the NRC staff to concur that we have fulfilled the ASLB requirement.

Sincerely,



H. D. Hukill
Director, TMI-1

HDH:CWS:vjf

Attachments

Summary of Test Procedure TP 664/2, Section 9.5 - Determination of Saturation Margin and RCS Pressure Versus Time Following a Simulated Loss of Pressurizer Heaters

During the performance of TP 664/2, (Pressurizer Operation Test) a portion of the test consisted of de-energizing all five (5) banks of pressurizer heaters and determining the degradation of both the Tsat margin and Reactor Coolant System (RCS) pressure over a two (2) hour period. At the end of the two hour time period 126KW of pressurizer heaters (Bank 4, Group 9) were energized and verification that the RCS pressure stabilized and/or began to increase was performed. This was done to verify that the heat losses from the pressurizer did not exceed 126KW as previously determined analytically. The conditions that existed prior to de-energizing all banks of pressurizer heaters are listed below:

- a. Average RCS Pressure (NR) - 2163.75 psig.
- b. Average RCS Tc - 532.3°F.
- c. Average RCS Th - 533.1°F.
- d. Average RCS Tsat Margin - 113.4°F.
- e. Reactor Coolant Pumps in operation - 4.
- f. Additional Testing in progress - None.

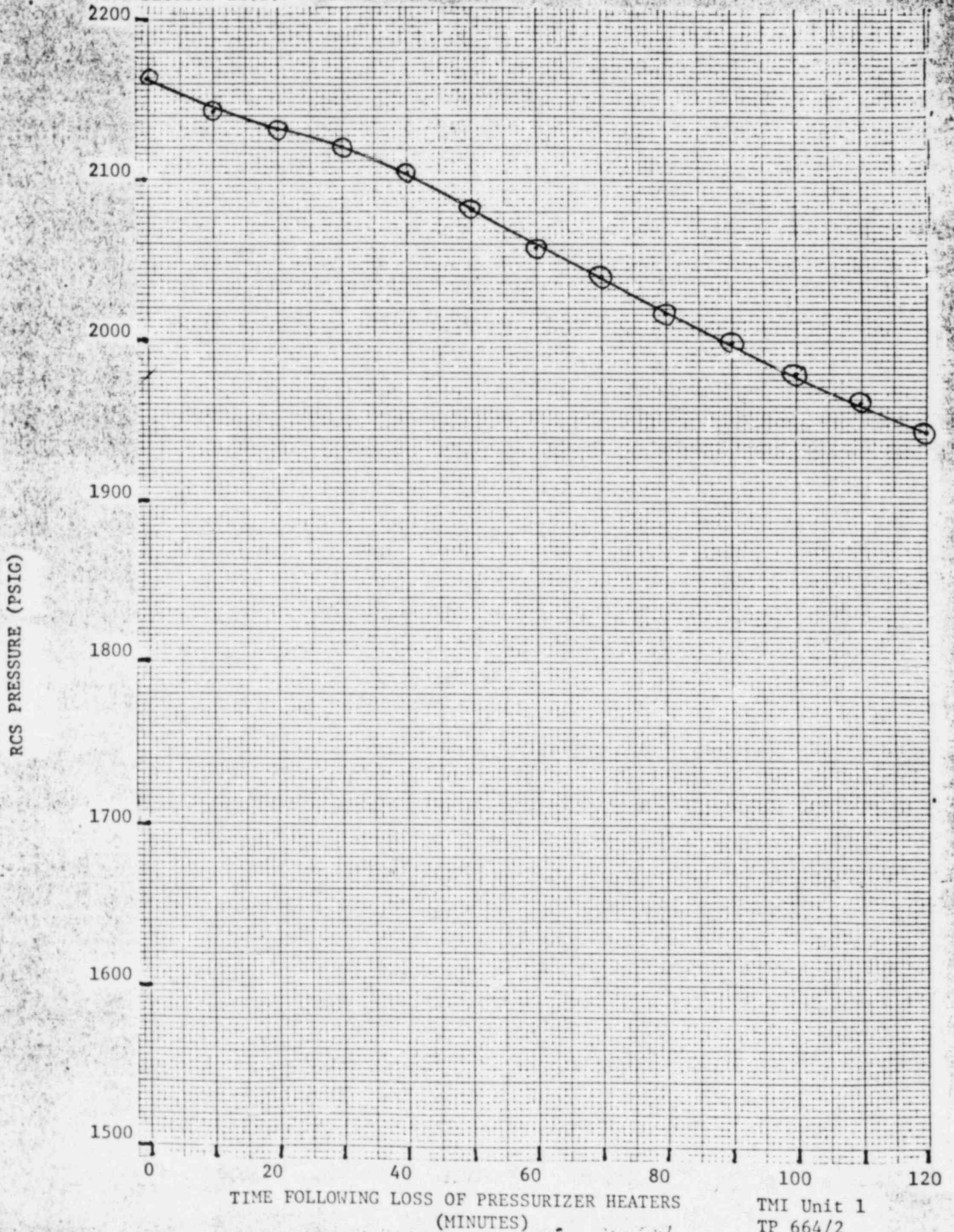
The conditions that existed following the two (2) hour time period wherein the pressurizer heaters were de-energized are listed below:

- a. Average RCS Pressure (NR) - 1943.5 psig.
- b. Average RCS Tc - 532.2°F.
- c. Average RCS Th - 533.0°F.
- d. Average RCS Tsat Margin - 99.6°F.
- e. Reactor Coolant Pumps in operation - 4

The data above shows that a 50°F saturation margin can be maintained for a two (2) hour time period in the event of a loss of pressurizer heaters. The average rate of depressurization was found to be approximately 110 PSI/hour. Upon energizing the 126KW

of pressurizer heaters, the RCS pressure stabilized demonstrating that pressurizer heat losses do not exceed 126KW. Graphs showing the RCS pressure and Tsat margin versus time for the two (2) hour period wherein pressurizer heaters were de-energized are attached.

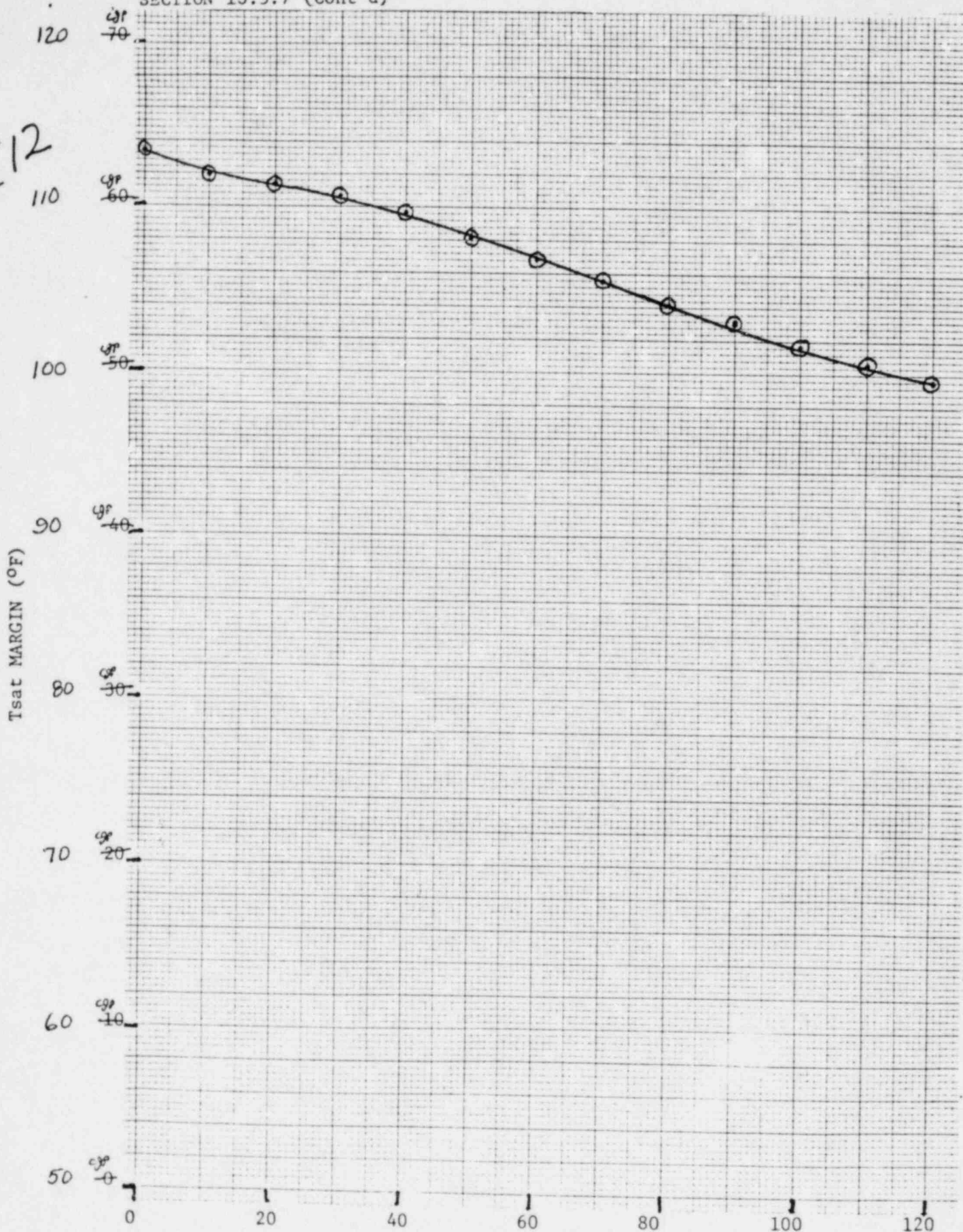
SECTION 10.5.7



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SECTION 10.5.7 (Cont'd)

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TIME FOLLOWING LOSS OF PRESSURIZER HEATERS
(MINUTES)

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