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August 25, 1983
5211-83-230

Office of Nuclear Reactor Regulation
Attn: J. F. Stolz, Chief
Operating Reactor Branch No. 4
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Sir:

Three Mile Island Nuclear Station, Unit 1 (TMI-1)
Operating License No. DPR-50
Docket No. 50-289
Inadequate Core Cooling (NUREG 0737, II.F.2)

Your letter of June 14, 1983 requested clarification on two items of minor concern dealing with the Subcooling Margin Monitor. The first item related to our letter of March 10, 1983 (83-071) and the surveillance requirements for the SMM. Amendment 78 dated October 20, 1982, p. 4.7a (attached) provides those requirements. Surveillance Procedure 1302.-6.6, available on site, discusses specific details of that surveillance. Additionally, pages 6 and 7 of attachment 1 to our letter of March, 1983 have been revised for the sake of readability and are enclosed.

The second item concerned our letter of February 18, 1983 (83-039) and the seismic qualification of the SMM indicator. GPUN has recently contacted Westinghouse and Combustion Engineering concerning a qualified digital indicator. We are advised that these two vendors do not provide an indicator qualified separately from the entire instrumentation package. These indicators are also not compatible with existing instrumentation at TMI-1. (GPUN's SMM was designed and partially installed prior to the time that these NSSS vendors were developing a SMM instrumentation package). However, GPUN has contacted another vendor who is currently qualifying a digital indicator. Upon receipt of successful results, GPUN will place an order for this indicator which is compatible with our SMM system.

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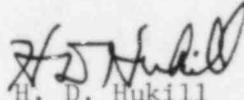
Mr. J. F. Stolz

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Additional information requested in Attachment 1 of your June 14 letter will be provided as further detailed design information becomes available.

Sincerely,


H. D. Hukill
Director, TMI-1

HDH:LWH:vjf

Attachments

cc: R. Conte
J. Van Vliet

DESIGN AND QUALIFICATION OF THE
SATURATION MARGIN MONITOR

1. Environmental/Seismic Qualification - The pressure measurement is obtained from 2 seismic and environmentally qualified sensors. The temperature measurement is control grade, and all signals are seismic Category I and separated for use as redundant signals. The qualification of the meter was recently discussed in our letter of February 14, 1983.
2. Single Failure - Redundant channels which are electrically independent are used.
3. Power Sources - The two saturation margin monitors use separate power supplies (115 Vac 60 Hz) powered from safety grade inverters.
4. Availability - The operability/surveillance requirements of the saturation margin monitor are provided in Amendment 78 dated October 20, 1982.
5. QA Requirements - The quality level of all equipment covered for the saturation margin monitor is designated as Nuclear Safety Related, Class 1E and meets the requirements of the OQA plan Rev. 9. The temperature sensors, plant computer and annunciation system are nonsafety related components.
6. Continuous Operation - The saturation margin monitor will continuously display the margin between actual primary coolant temperature and the saturation temperature.
7. Recording Instrumentation - Outputs of saturation margin are provided for trending and alarm annunciation by the plant computer.
8. Display Instrumentation - Digital display of the margin between actual RCS temperature and saturation temperature for the existing RCS pressure is provided in the control room on the back panel (PCL).
9. Isolation - The Tsat computation equipment provides isolation to the pressure and temperature signals through the use of isolation devices at the signal inputs. The Tsat outputs to the annunciation system and the computer utilize isolation devices to minimize potential hazardous effects from these system.
10. Testing - Test signals may be substituted for normal RC pressure and temperature signals to verify operation on the Tsat Margin Monitor equipment. Operating checks can be performed by reading RC pressure and temperature and with calculations obtain the Tsat margin.
11. Surveillance - See item 4.

12. Removal From Service - The Tsat Margin Monitor is designed such that all necessary functional tests can be performed on line without affecting other reactor systems. Any testing that is required to be performed offline shall not be required to be performed at less than 15 month intervals.
13. Access for Adjustment - The Tsat Margin Monitors are rack mounted in signal processing channel A and B equipment cabinets. Accessibility for these cabinets is the same as for normal maintenance.
14. Anomalous Reading - Anomalous readings are reduced to a minimum by items 2, 3 and 9.
15. Ease of Repair - See item 13.
16. Directly Measured Variable Sensors - RCS temperature and pressure sensors provide direct inputs to the saturation margin calculation.
17. Normal/Accident Ranges - The Tsat Margin Monitor has a range of -100° to 400°F which is suitable for normal and accident conditions.
18. Periodic Testing - Testing is described in item 10 and surveillance will be provided as discussed in item 11.

TABLE 4.1-1 (continued)

<u>CHANNEL DESCRIPTION</u>	<u>CHECK</u>	<u>TEST</u>	<u>CALIBRATE</u>	<u>REMARKS</u>
49. Saturation Margin Monitor	S(1)	M(1)	R	(1) When T_{ave} is greater than 525°F.
50. Emergency Feedwater Flow Instrumentation	NA	M(1)	R	(1) When T_{ave} is greater than 250°F.
51. Emergency Feedwater Initiation				
a. Loss of RCP's	NA	Q(1)(2)	R	(1) When T_{ave} is greater than 250°F.
b. Loss of both Feedwater Pumps	NA	Q(1)(2)	R	(2) Includes logic test only

S - Each Shift
D - Daily
W - Weekly
M - Monthly

T/W - Twice per week
B/M - Every 2 months
Q - Quarterly
P - Prior to each startup
if not done previous week

R - Each Refueling Period
NA - Not applicable
B/W - Every two weeks