Northern States Power Company

414 Nicollet Mall
Minneapolis, Minnesota 55401
Telephone (612) 330-5500

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Director
Office of Nuclear Reactor Regulation
U S Nuclear Regulatory Commission
Washington, DC 20555

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
Docket Nos. 50-282 License Nos. DPR-42
50-306 DPR-60

Additional Information Related to Implementation of
NUREG-0737 Item II.F.2, Inadequate Core Cooling Instrumentation

The purpose of this letter is to provide additional information related to the Prairie Island core exit thermocouple (CET) backup display and the model core exit thermocouple Technical Specifications proposed in our June 18, 1985 submittal.

In our October 22, 1985 letter on inadequate core cooling instrumentation, we committed to further evaluate the feasibility of upgrading the CET backup display to include four CET signals from each core quadrant and to provide either a schedule for upgrading the display or further justification for deviation from the requirements of NUREG-0737, Item II.F.2. We have completed our evaluation and now plan to provide a qualified backup display which will include at least four core exit thermocouples per quadrant.

The backup CET display will be part of the Inadequate Core Cooling Monitor (ICCM) package being purchased from Westinghouse. When completed, the ICCM modification will upgrade the existing RVLIS display to provide a qualified control room display of reactor vessel level, subcooling margin and CET readings. The ICCM will be in the same location as the existing RVLIS display, mounted in the incore rack in the control room. The existing subcooling margin monitor will be removed. Present plans call for installation of the ICCM to be completed by December of 1987. The eight qualified CET signals presently supplied to the subcooling margin monitor will be transferred to the ICCM by that date.

The remaining core exit thermocouples, presently connected to the existing plant process computer, will not be connected to the ICCM until completion of the new plant process computer and transfer of the core exit thermocouples to the class 1E remote multiplexer units. The CET's not connected to the qualified display must remain connected to the existing plant process computer to support reactor monitoring functions and cannot be paralleled to both the qualified display and the existing plant process

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Because of delays in the plant process computer replacement project, described in our November 27, 1985 letter requesting an extension of time for completing NUREG-0737 Supplement No. 1 requirements, work on the plant process computer replacement project not related to the safety parameter display system (SPDS) has been postponed and will not resume until January 1987. As a result, transfer of the CET's to the new plant process computer class 1E remote Multiplexer units and connection of the remaining CET's to the qualified display will not be completed until December 1988.

During the interim period, a display of eight fully qualified CET's will be maintained. The use of this interim display until completion of the SPDS was found acceptable by the NRC Safety Evaluation Report dated May 13, 1985. We believe that continued operation with an interim control room display of eight qualified CET's until completion of the new plant process computer will provide an adequate margin of safety because:

1. A sufficient number of CET's is provided on the interim qualified display to adequately monitor post-accident core exit temperature distribution in the event the plant process computer display is lost. The cross-sectional area of a Prairie Island two-loop core is roughly half that of a Westinghouse four loop core and thus eight CET's (two per quadrant) are adequate to monitor the core exit for any localized overheating.

2. A reliable method exists for obtaining core exit temperatures, independent of the plant process computer and the interim qualified displays. The capability exists to manually read all individual CET temperatures using a portable instrument in the bus rooms.

3. The Emergency Operating procedure (EOP) responses would not be different if the number of CET's on the qualified display were greater than eight, since eight readings of core exit temperature would be sufficient to indicate what actions are necessary.

The model CET Technical Specifications proposed in our June 18, 1985 submittal were found to be unacceptable by the NRC Staff, and as a result we have agreed to revise the model CET Technical Specifications originally submitted. The revised model CET Technical Specifications are attached along with the revised model reactor vessel level indication system (RVLIS) Technical Specifications previously submitted in our October 22, 1985 letter. The revised model CET Technical Specifications are consistent with the guidance provided in the Standard Technical Specifications.

Please contact us if you have any questions related to the information we have provided.

David Musolf
Manager - Nuclear Support Services

DMM/EFE/efe

c: Regional Administrator-III, NRC
NRR Project Manager, NRC
Resident Inspector, NRC
MPCA
Attn: F W Ferman
G Charnoff

Attachment

C. Specification - Reactor Vessel Level Instrumentation

1. The reactor vessel level instrumentation channels specified in Table TS 3.15-3 shall be operable.

2. With the number of Operable reactor vessel level instrumentation channels less than the Required Total Number of Channels shown on Table TS.3.15-3, either restore the inoperable channels to Operable status within fourteen days, or be in at least Hot Shutdown within the next 12 hours.

3. With the number of Operable reactor vessel level instrumentation channels less than the Minimum Channels Operable requirements of Table TS.3.15-3, either restore the minimum number of channels to Operable status within 48 hours or be in at least Hot Shutdown within the next 12 hours.

Basis

The operability of the event monitoring instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess these variables during and following an accident. This capability is consistent with the recommendations of NUREG-0578, "TMI-2 Lessons Learned Task Force Status Report and Short Term Recommendations."

Core exit thermocouple readings necessary to meet the requirements of Specification 3.15.A are available from the Plant Process Computer, the Control Room Core Exit Thermocouple Display or if no other readout is available, from test equipment readings from the Core Exit Thermocouple Junction Boxes.

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TABLE TS.3.15-1

EVENT MONITORING INSTRUMENTATION - PROCESS & CONTAINMENT

Instrument	Required Total No. of Channels	Minimum Channels Operable
1. Pressurizer Water Level	2	1
2. Auxiliary Feedwater Flow to Steam Generators (One Channel Flow and One Channel Wide Range Level for Each Steam Generator)	2/steam gen	1/steam gen
3. Reactor Coolant System Subcooling Margin	2	1
4. Pressurizer Power Operated Relief Valve Position (One Common Channel Temperature, One Channel Limit Switch per Valve, and One Channel Acoustic Sensor per Valve*)	2/valve	1/valve
5. Pressurizer Power Operated Relief Block Valve Position (One Common Channel Temperature, One Channel Limit Switch per Valve, and One Channel Acoustic Sensor per Valve*)	2/valve	1/valve
6. Pressurizer Safety Valve Position (One Channel Temperature per Valve and Common Acoustic Sensor**)	2/valve	1/valve
7. a. Containment Water Level (wide range)	2	1
b. Containment Water Level (narrow range)	2	1
8. Containment Hydrogen Monitor (2 sensors per Channel)	2	1
9. Containment Pressure (wide range)	2	1
10. Core Exit Thermocouples	4/core quadrant	2/core quadrant

* - A common acoustic sensor provides backup position indication for each pressurizer power operated relief valve and its associated block valve.

** - The acoustic sensor channel is common to both valves. When operable, the acoustic sensor may be considered as an operable channel for each valve.

TABLE TS.3.15-1
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Table TS.3.15-3

EVENT MONITORING INSTRUMENTATION - REACTOR VESSEL LEVEL

Instrument	Required Total No. of Channels	Minimum Channels Operable
1. Reactor Vessel Level Instrumentation*	2	1

* Includes the full range and dynamic head range

TABLE TS.3.15-3
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Table TS.4.1-1
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	Channel Description	Check	Calibrate	Functional Test	Response Test	Remarks
27.	Turbine Overspeed Protection Trip Channel	NA	R	M	NA	
28.	Deleted					
29.	Deleted					
30.	Deleted					
31.	Seismic Monitors	R	R	NA	NA	
32.	Coolant Flow - RTD Bypass Flowmeter	S	R	M	NA	
33.	CRDM Cooling Shroud	S	NA	R	NA	FSAR page 3.2-56
34.	Reactor Gap Exhaust Air Temperature	S	NA	R	NA	
35a.	Post-Accident Monitoring Instruments	M	R	NA	NA	Includes all those in Table TS.3.15-1 (except for containment hydrogen monitors which are separately specified in this table)
b.	Post-Accident Monitoring Radiation Instruments	D	R	M	NA	Includes all those in Table TS.3.15-2
c.	Post-Accident Monitoring Reactor Vessel Level Instrumentation	M	R	NA	NA	Includes all those in Table TS.3.15-3
36.	Steam Exclusion Actuation System	W	Y	M	NA	See FSAR Appendix I, Section I.14.6
37.	Overpressure Mitigation System	NA	R	R	NA	Instrument Channels for PORV Control Including Overpressure Mitigation System
38.	Degraded Voltage 4 KV Safeguard Busses	NA	R	M	NA	
39.	Loss of Voltage 4 KV Safeguard Busses	NA	R	M	NA	

Table TS.4.1-1
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