



Northern States Power Company

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

October 22, 1985

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 reactor vessel level indication system (RVLIS) Technical Specifications proposed in our June 18, 1985 submittal.

In our July 19, 1985 letter on the core exit thermocouple backup display, we provided our plans for the final configuration of the backup CET display and our justification for providing a backup display of eight qualified CET's rather than the 16 required by NUREG-0737, Item II.F.2. Based on recent discussions with the NRC Staff on our proposed configuration, the questions remaining on the ability to parallel the CET signal between the remote multiplexor units and the backup display, and the present uncertainty surrounding the plant computer upgrade we plan to further evaluate the feasibility of upgrading the backup display to include 4 CET signals from each core quadrant. At the conclusion of that evaluation we will provide a schedule for upgrading the CET backup display, or further justification for deviation from the requirements of NUREG-0737, Item II.F.2. The results of this evaluation will be provided to the NRC by July 1, 1986.

Also as a result of discussions with the NRC Staff, we have agreed to revise the proposed model RVLIS Technical Specifications submitted in our June 18, 1985 letter. The revised model RVLIS Technical Specifications are attached. The RVLIS channel descriptions specified in Table TS.3.15-3 have been changed to agree with the RVLIS Standard Technical Specification (STS) provided in Generic Letter 83-37, NUREG-0737 Technical Specifications.

The model limiting conditions for operation (LCO) allowing one RVLIS channel to be inoperable for thirty days and both channels inoperable for seven days have been changed to allow one channel to be inoperable for 14 days and both to be inoperable for 48 hours. The revised LCO agrees with the RVLIS STS except that the STS only allows one channel to be out of service for seven days. The following justification is provided for this deviation from the STS requirements.

8510310366 851022
PDR ADOCK 05000282
P PDR

A002
11

Prairie Island has had long experience with filled sealed legs in applications such as Boric Acid Storage Tank (BAST) Level, Holdup Tank level, Accumulator level and Pressurizer level. This experience has shown that these systems require considerable maintenance. In some cases, problems have not appeared until after several years of operation, but in general, sealed leg applications have required much more maintenance than other transmitter applications. Because of maintenance problems, all the pressurizer level transmitters and most of the accumulator level and holdup tank transmitters have been replaced at least once, and all of the BAST level transmitters are being replaced at Prairie Island. Based on this experience, we feel that the RVLIS system, which utilizes filled sealed legs, has the potential for becoming a high maintenance system.

Related to our concerns on the high potential for maintenance problems with the RVLIS system is the length of time required to repair the system. Because of the system design and location, repairs could easily take several days to more than a week. For example, the following repair schedule would be representative of an emergency repair following the failure of a sensor, capillary tube, or hydraulic isolator.

<u>Day</u>	<u>Repair Schedule</u>
1	Evaluation of problem and Westinghouse contacted
2&3	Westinghouse mobilizes
4	Site specific training and badging of Westinghouse personnel
5	Trouble shooting and repair
6&7	Purge and pressure test of capillary tube from sensor to hydraulic isolator
8	Pull vacuum on capillary tube
9	Fill capillary tube and calibrate

The repair schedule outlined above is based on the following assumptions.

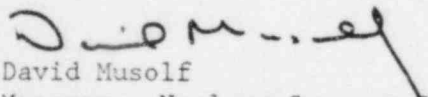
1. The problem with the system is apparent
2. Trained and highly competent personnel are available
3. Repair and test equipment is available
4. No further equipment failures occur, either in the RVLIS system or in the test equipment

5. Only minimal radiation protection is required for any containment work
6. Spare parts are available and operate properly when installed
7. NSP agreement to purchase the Westinghouse maintenance & emergency package

Not included in this time estimate is the potential for unexpected delays caused by problems with spare parts installed during a repair. Problems experienced during the installation and startup testing of the Prairie Island RVLIS systems indicate there is a high potential for such problems to occur. In order to end up with 12 installed and 1 spare hydraulic isolator, 12 hydraulic isolators were returned to the manufacturer for retesting, 5 were returned for upgrades, and 7 were returned because of failures during testing. This includes a Unit 2 sealed leg hydraulic isolator that was installed and tested three times before it would pass the pressure test.

When the high potential for maintenance problems and the length of time required to repair the system are combined, the STS requirement only permitting one RVLIS channel to be inoperable for seven days becomes a great concern. A repair such as described above, for which we see a high potential, would result in a plant shutdown if the seven day STS requirement were adopted. This seems to be an unnecessary shutdown considering the safety significance of the system. The proposed LCO allowing one train to be inoperable for 14 days will allow time to perform system maintenance while still providing an acceptable level of plant safety.

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


David Musolf
Manager - Nuclear Support Services

DMM/EFE

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

Attachment

DRAFT

INFORMATION ONLY

TS.3.15-2
REV

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.

D. Specification - Core Exit Thermocouple Instrumentation*

1. Except as specified in 3.15.D.2 and 3.15.D.3, a minimum of four core exit thermocouple instrumentation channels per core quadrant shall be Operable.
2. With less than four core exit thermocouple instrumentation channels Operable per core quadrant, a total of 16 core exit thermocouple instrumentation channels shall be maintained Operable and action shall be taken to restore the core exit thermocouple instrumentation system to four channels per core quadrant.
3. With less than four core exit thermocouple instrumentation channels Operable per core quadrant and less than 16 total core exit thermocouple channels Operable, restore the inoperable channels necessary to meet the requirements of 3.15.D.1 or 3.15.D.2 to Operable status within 7 days, or be in at least Hot Shutdown within the next 12 hours.

* Effective upon operability of the Safety Parameter Display System

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."

Table TS.3.15-3

EVENT MONITORING INSTRUMENTATION - REACTOR VESSEL LEVEL

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

INFORMATION ONLY

DRAFT

TABLE TS.3.15-3
REV

* Includes the full range and dynamic head range