



Northern States Power Company

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U S Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

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

Supplement 1 for License Amendment Request dated November 19, 1999
Establish Required Actions For Operation In Mode 3
With No RC Pumps In Operation
Response to March 16, 2000, Request for Additional Information

The information in the attachment is provided in response to the NRC request for additional information during a teleconference on March 16, 2000. It is related to our License Amendment Request dated November 19, 2000, which asks for allowance to intentionally place the RCPs in an inoperable condition and maintain natural circulation for up to 12 hours as part of a preplanned work activity,

In this response we have made no new NRC commitments. If you have any questions related to this response, please contact John Stanton, 651-388-1121 x4083.

Joel P. Sorensen
Site General Manager
Prairie Island Nuclear Generating Plant

Attachment

c: Regional Administrator -- III, NRC
NRR Project Manager, NRC
Senior Resident Inspector, NRC

James Bernstein, State of Minnesota
J E Silberg

ADDI

UNITED STATES NUCLEAR REGULATORY COMMISSION

NORTHERN STATES POWER COMPANY
PRAIRIE ISLAND NUCLEAR GENERATING PLANT DOCKET Nos. 50-282
50-306

REQUEST FOR AMENDMENT TO
OPERATING LICENSES DPR-42 & DPR-60

Supplement 1 for License Amendment Request dated November 19, 1999
Establish Required Actions For Operation In Mode 3
With No RC Pumps In Operation
Response to March 16, 2000, Request for Additional Information

Northern States Power Company, a Minnesota corporation, with this letter is submitting information to support a requested license amendment. This letter and its attachments contain no restricted or other defense information.

NORTHERN STATES POWER COMPANY

By

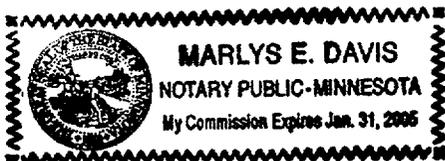
Joel P. Sorensen
Joel P. Sorensen

Site General Manager

Prairie Island Nuclear Generating Plant

On this 6th day of April 2000 before me a notary public in and for said County, personally appeared, Joel P. Sorensen, Site General Manager, Prairie Island Nuclear Generating Plant, and being first duly sworn acknowledged that he is authorized to execute this document on behalf of Northern States Power Company, that he knows the contents thereof, and that to the best of his knowledge, information, and belief the statements made in it are true and that it is not interposed for delay.

Marlys E. Davis



Attachment

Prairie Island Nuclear Generating Station

Supplement 1 for License Amendment Request dated November 19, 1999 Establish Required Actions For Operation In Mode 3 With No RC Pumps In Operation Response to March 16, 2000, Request for Additional Information

Question

Why is it necessary to jointly switch the two reactor coolant pump (RCP) motors between their alternate and their normal power sources, rather than switching one RCP at a time?

Response:

The arrangement of connections between available power sources and the plant electrical distribution system is designed to provide for both redundancy of supply and diversity of supply. A simplified drawing of the plant electrical distribution system is provided, which is similar to the drawings provided in Licensee Event Reports¹ 97-03-00 and 99-01-00. There are manual disconnects on the low side of the reserve transformers, which are not shown on this simplified drawing, but which play a significant role when the RCP supply buses are to be aligned back to their reserve power source.

The plant 4.16kV buses 11 and 12 (Unit 1 RCP supply buses) are energized from the 1M transformer through breakers 11-4 and 12-4 during Unit 1 power operation or the 1R transformer through breakers 11-1 and 12-1 during normal "reserve" non-power operation. Likewise, the plant 4.16kV buses 21 and 22 (Unit 2 RCP supply buses) are energized from the 2M transformer through breakers 21-1 and 22-1 during Unit 2 power operation or the 2RX transformer through breakers 21-4 and 22-4 during normal "reserve" non-power operation. The alternate power source for the RCP supply buses is provided by a connection from the opposite unit's reserve transformer via the 12RXBT breaker².

During normal operation the power source for a unit's RCP supply buses can be switched between the main supply source and the reserve supply source without de-energizing the

¹ These LERs describe events that forced the RCP supply buses to be aligned to their alternate source. The activities required to return the electrical distribution to its normal alignment after these events are an example of circumstances applicable to the subject License Amendment Request.

² The simplified drawing in the referenced LERs does not correctly show this connection. The intersection of lines between the X windings of the 1R transformer and breaker 12-1 on bus 12 should have a heavy dot to indicate that these intersecting lines connect at this point. Likewise, the intersection of lines between the 2RX transformer and breaker 21-4 on bus 21 should have a heavy dot to indicate that these intersecting lines connect at this point. The drawing included herein correctly shows this connection.

buses. This can be accomplished because each of the sources connects to each bus through different circuit breakers. These bus supply breakers, -1 and -4 on each bus, provide the means to remotely disconnect the offgoing source after remotely paralleling the oncoming source.

Two features of the plant electrical distribution system make it unfeasible to transfer between the reserve and alternate power sources with both pairs of RCP supply buses energized:

- (1) Both of the two manual disconnects on the low side of the reserve transformers can not remain closed when the cross tie breaker 12RXBT is also closed. Prolonged exposure to the circulating current created by the parallel operation of the transformer would cause significant equipment damage.
- (2) With the RCP buses loaded , it would be hazardous to personnel and equipment to attempt to open a manual disconnect on either of the reserve transformers. The disconnects are not designed to be operated while under any load.

Because of the simple single cross connect between the reserve transformers, 2RX and 1R, both RCPs on a unit must switch power sources at the same time. The performance of this switching in an unhurried and cognitive manner takes a significant amount of time:

- (1) One or more manual disconnects must be operated to affect a change in the alignment of the alternate power supply. These disconnects are not designed to be operated under load, so to provide for the physical safety of the operations personnel and the equipment these activities can only be done with the buses dead.
- (2) The breakers between the RCP buses and their potential power sources must be opened and racked out for the safety of the personnel operating the necessary manual disconnects.
- (3) If the supply side of a reserve transformer is to be de-energized and isolated for physical safety during system alignment activities, then breakers and disconnects under the jurisdiction of the System Control Center (SCC) must be operated. The SCC must authorize all switching and provide clearances for all work activities involving equipment under SCC jurisdiction.
- (4) In addition to the RCPs, the involved buses also power the main feedwater pumps, so significant loads will be shed from one part of the switchyard and then picked up by another part of the switchyard. This switching must be coordinated with the SCC to have system voltages adjusted prior to the restart of these large motors.
- (5) This switching activity temporarily involves the complicated sequencing of activities at multiple locations and amongst multiple workgroups. Such an "Infrequent Test or Evolution" has attendant upon it more extensive pre-job briefings, activity oversight, checkpoints and communications than a routine operating evolution.

