Northern States Power Company

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September 20, 1995

10 CFR Part 50
Section 50.90

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 to License Amendment Request Dated January 10, 1995
Post Accident Monitoring Technical
Specifications Conformance to Standard Technical Specifications

Pursuant to discussions with your staff regarding the subject license amendment request, Northern States Power Company provides the following information on the relationship between the reactor coolant system cold leg temperature (T_{cold}) and the steam generator temperature derived from steam generator pressure. This discussion shows that the use of steam generator temperature (derived from steam generator pressure), in lieu of measured reactor coolant system T_{cold}, is an acceptable alternative indication for controlling cooldown rate and placing the over-pressure protection system (OPPS) in service during accident situations.

Because heat is transferred from the reactor coolant system to the steam generator, steam generator temperature will be lower than T_{cold} and the difference in temperature will be proportional to the heat removed. At 100% power, the steam generator temperature will be approximately 20°F lower than T_{cold}. Following a

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reactor trip, the decay heat is only about 7% of rated power, and the temperature difference between the steam generator and the reactor coolant system cold leg would only be about 1 to 2°F. This relationship exists whether there is forced or natural circulation in the reactor coolant system. Although for natural circulation, the temperature in a steam generator may be higher than the associated T_{cold} if that steam generator is not being steamed, i.e., the reactor coolant system is not being cooled by that steam generator.

In a post-accident situation, the T_{cold} indication is utilized by operations personnel to monitor and control the reactor coolant system cooldown rate and to determine when the over-pressure protection system should be placed in service. In both cases, using the steam generator temperature derived from steam generator pressure would be conservative to using the actual reactor coolant system T_{cold} indication.

Normally, the cooldown rate is developed by plotting the reactor coolant system average temperature (T_{ave}) over time. Because steam generator temperature is lower than T_{cold}, reactor coolant system T_{ave} determined using steam generator temperature will be lower than the T_{ave} determined using the actual T_{cold} value. Therefore, the cooldown rate calculated using the initial actual (pre-accident) reactor coolant system T_{ave} and a post-accident T_{ave} determined using steam generator temperature, would be conservatively higher than the actual cooldown rate. Thus, using the cooldown rate calculated from steam generator temperature to control the reactor coolant system post-accident cooldown would result in a lower actual cooldown rate. The lower actual cooldown rate would impart less stress on the reactor vessel.

With respect to placing the over-pressure protection system in service, reactor coolant system T_{ave} determined using the steam generator temperature will be lower than the actual T_{ave}. The use of the steam generator temperature derived T_{ave} to determine when the over-pressure protection system should be placed in service will result in the over-pressure protection system being conservatively placed in service at a higher actual reactor coolant system temperature, further from the reference transition temperature of the reactor vessel.

Therefore, based on the discussion above, steam generator temperature does correlate to reactor coolant system T_{cold}, and for the purpose of monitoring of reactor coolant system cooldown rate and placing the over-pressure protection system in service, its use is conservative.

The information provided by this letter does not modify the subject license amendment request, therefore the Safety Evaluation, Significant Hazards

Determination and Environmental Assessment originally presented in the January 10, 1995 submittal continue to bound the proposed amendments.

Northern States Power Company will establish standing procedural guidance for the plant operators directing them to correlate steam generator temperature to T_{cold} in the event one or more T_{cold} instrument channels is unavailable.

If you have any questions related to this information in support of the subject license amendment request, please contact myself or Dale Vincent at 612-388-6758 X4107.

M. D. Wadley
Plant Manager,
Prairie Island Nuclear Generating Plant

c: Regional Administrator - III, NRC
NRR Project Manager, NRC
Senior Resident Inspector, NRC
State of Minnesota
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UNITED STATES NUCLEAR REGULATORY COMMISSION

NORTHERN STATES POWER COMPANY

PRAIRIE ISLAND NUCLEAR GENERATING PLANT DOCKET NO. 50-282
50-306

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

LICENSE AMENDMENT REQUEST DATED January 10, 1995

Northern States Power Company, a Minnesota corporation, provides this supplemental information in support of its license amendment request dated January 10, 1995. This letter contains no restricted or other defense information.

NORTHERN STATES POWER COMPANY

By M D Wadley
M. D. Wadley
Plant Manager
Prairie Island Nuclear Generating Plant

On this 20th day of Sept, 1995 before me a notary public in and for said County, personally appeared M. D. Wadley, Plant 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.

Marcia K LaCore

MARCIA K. LaCORE
NOTARY PUBLIC-MINNESOTA
HENNEPIN COUNTY
My Commission Expires Jan. 31, 2000