UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

June 12, 1989

Docket Nos. 50-282 and 50-306

Mr. Tom Parker
Manager Nuclear Support Services
Northern States Power Company
414 Nicollet Mall
Minneapolis, Minnesota 55401-1927

Dear Mr. Parker:

SUBJECT: COMMENTS ON THE NORTHERN STATES POWER COMPANY RESPONSE TO GENERIC LETTER 88-17 WITH RESPECT TO EXPEDITIOUS ACTIONS FOR LOSS OF DECAY HEAT REMOVAL FOR PRAIRIE ISLAND NUCLEAR GENERATING PLANT UNITS 1 AND 2 (TAC NOS. 69767 AND 69768)

Generic Letter (GL) 88-17 was issued on October 17, 1988 to address the potential loss of decay heat removal (DHR) during nonpower operation. In the GL, we requested (1) a description of your efforts to implement the eight recommended expeditious actions of the GL and (2) a description of the enhancements, specific plans and a schedule for implementation of the six recommended program enhancements.

The NRC staff has reviewed your response to Generic Letter 88-17 on expeditious actions in the letter of January 6, 1989. Your letter also had responses for programmed enhancements. However, these will be reviewed at a later time. We find that your response appears to meet the intent of the GL for expeditious actions but lacks some of the details requested in Enclosure 2 of GL 88-17. Your response to some items is brief and therefore does not allow us to fully understand your actions taken in response to GL 88-17. You may wish to consider several observations in order to assure yourselves that the actions are adequately addressed.

1. You mention a training packaged developed for operating crews and appropriate personnel relating to the Diablo Canyon event, specifics of the RHR system, reactor coolant instrumentation and the Westinghouse Owner's Group (WOG) study. It is not specifically stated if maintenance personnel are also included in the training. The item was intended to include all personnel who can affect reduced inventory operation.

2. You indicate that procedures and administrative controls are in place to reasonably assure that containment closure can be achieved within the time at which core uncovery could result from a loss of DHR coupled with an inability to initiate alternate cooling or addition of water to the RCS inventory. You indicate that refinements and modifications are being made to reflect time periods for closure consistent with the GL and WOG study. You have not presented the new times for containment closure based on your plant specific analysis. In the meantime, Generic Letter 88-17 states that "containment penetrations including the equipment hatch, may remain open provided closure is reasonably issued within 2.5 hours of initial loss of DHR." This time will be less if there are vent areas totaling greater than one square inch in the cold leg (see Enclosure 2, Section 2.2.2 of GL 88-17).

DF01
1/1

3. In some plants the quick closing of the equipment hatch is achieved by the installation of a reduced number of bolts. If you plan to use less than the full complement of bolts for sealing the equipment hatch then you should first verify that you can make a proper seal of the periphery mating surfaces to meet the closure criteria.

4. You indicate that two core exit thermocouples will be provided for obtaining continuous temperature indication that is representative of core exit conditions when the RCS is in a mid-loop condition. You have stated that the core exit thermocouples use a common power supply. You indicate that a failure of the power supply will cause temperature indications to increase, which is in the conservative direction for operator action. Although, we do not necessarily agree with your statement "Inaccurate temperature indications cannot cause inappropriate operator actions as would inaccurate RCS level indications," nevertheless, we are not calling for independent power supplies, but two different sensors.

5. You indicate that two continuous RCS water level indications are provided to the control room whenever the RCS is in a reduced inventory condition. In one system, a level transmitter sends signals to a control board level indicator and via a temporary installation, high and low RCS water level alarms are available. Trending of the RCS water level can be performed on the emergency response computer system which also receives the level signal. You have stated that the second RCS water level indication uses a tygon tube which is permanently installed with remote viewing in the control room. You indicate that the level reading is recorded hourly. You state that if the remote viewing equipment is not operable a designated "tube watch" operator in contact with the control room will be provided. As noted in GL 88-17, these observations from other than in the control room should be recorded at intervals no greater than 15 minutes. You have indicated that the common sensing taps for both of the level systems are located off the RCS loop A crossover lege. Since the same commons taps are used for two level systems a common error may occur and extra precautions are needed. You have not stated what the accuracy is of each of the two systems. When two instruments are in place, care should be taken to resolve any discrepancy between the two measurement systems. Also, the pressure in the reference leg should approximate the pressure of the void in the hot leg or be compensated to obtain the correct level value.

6. Walking the tygon tube following installation to verify lack of kinks or loop seals is necessary. Experience shows that periodic walkdowns are needed after installation. We recommend daily walkdowns when the tygon tube is in use, with an additional walkdown immediately prior to its being placed in use.

7. For expeditious action regarding provision of at least two available or operable means of adding inventory to the RCS that are in addition to pumps that are a part of the normal DHR systems, you state that present procedures require the charging system to be operable and give guidance

on injection rates. You have not stated the injection point for this system. You further state that additions to the procedures will be made requiring that a safety injection pump be made available which is aligned for upper plenum injection. As alluded to in Enclosure 2, Section 2.2.2 of GL 88-17, if openings totaling greater than 1 square inch exists in the cold legs, reactor coolant pumps and crossover piping of the RCS, the core can uncover quickly when pressurized under loss of RHR conditions. If this situation should arise, it is generally more effective to inject makeup water into the hot leg rather than the cold leg.

8. You have not stated the use of any specific vent openings on the hot side of the RCS to relieve RCS pressurization. The removal of a pressurizer manway or steam generator manway, for example, is a means to provide RCS venting. Calculations need to be performed to verify the effectiveness of RCS openings, however, because even for relatively large hot side openings in the RCS, pressurization to several psi can still result. For example, with removal of a pressurizer manway large steam flows in combination with flow restrictions in the surge line and lower pressurizer hardware may still lead to pressurization.

There is no need to respond to the above observations.

As you are aware, the expeditious actions you have briefly described are an interim measure to achieve an immediate reduction in risk associated with reduced inventory operation, and these will be supplemented and in some cases replaced by programmed enhancements. We intend to audit both your response to the expeditious actions and your programmed enhancement program. The areas where we do not fully understand your responses as indicated above may be covered in the audit of expeditious actions.

This completes the staff review of your responses to the expeditious actions listed in the GL. The area of programmed enhancements will be addressed in a separate letter.

Sincerely,

Dominic C. D. Ianni

Dominic C. DiIanni, Project Manager
Project Directorate III-1
Division of Reactor Projects - III, IV, V
& Special Projects
Office of Nuclear Reactor Regulation

cc:
Gerald Charnoff, Esq.
Shaw, Pittman, Potts and Trowbridge
2300 N Street, N.W.
Washington, DC 20037

Dr. J. W. Ferman
Minnesota Pollution Control Agency
520 LaFayette Road
St. Paul, MN 55155

Mr. E. L. Watzl, Plant Manager
Prairie Island Nuclear Generating Plant
Northern States Power Company
Route 2
Welch, Minnesota 55089

Joseph G. Maternowski
Assistant Attorney General
Environmental Protection Division
Suite 200
520 Lafayette Road
St. Paul, Minnesota 55155

U.S. Nuclear Regulatory Commission
Resident Inspector's Office
1719 Wakonade Drive East
Welch, Minnesota 55089

Regional Administrator, Region III
U.S. Nuclear Regulatory Commission
Office of Executive Director for
Operations
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Mr. William Miller, Auditor
Goodhue County Courthouse
Red Wing, Minnesota 55066

on injection rates. You have not stated the injection point for this system. You further state that additions to the procedures will be made requiring that a safety injection pump be made available which is aligned for upper plenum injection. As alluded to in Enclosure 2, Section 2.2.2 of GL 88-17, if openings totaling greater than 1 square inch exists in the cold legs, reactor coolant pumps and crossover piping of the RCS, the core can uncover quickly when pressurized under loss of RHR conditions. If this situation should arise, it is generally more effective to inject makeup water into the hot leg rather than the cold leg.

8. You have not stated the use of any specific vent openings on the hot side of the RCS to relieve RCS pressurization. The removal of a pressurizer manway or steam generator manway, for example, is a means to provide RCS venting. Calculations need to be performed to verify the effectiveness of RCS openings, however, because even for relatively large hot side openings in the RCS, pressurization to several psi can still result. For example, with removal of a pressurizer manway large steam flows in combination with flow restrictions in the surge line and lower pressurizer hardware may still lead to pressurization.

There is no need to respond to the above observations.

As you are aware, the expeditious actions you have briefly described are an interim measure to achieve an immediate reduction in risk associated with reduced inventory operation, and these will be supplemented and in some cases replaced by programmed enhancements. We intend to audit both your response to the expeditious actions and your programmed enhancement program. The areas where we do not fully understand your responses as indicated above may be covered in the audit of expeditious actions.

This completes the staff review of your responses to the expeditious actions listed in the GL. The area of programmed enhancements will be addressed in a separate letter.

Sincerely,

Dominic C. DiIanni, Project Manager
Project Directorate III-1
Division of Reactor Projects - III, IV, V
& Special Projects
Office of Nuclear Reactor Regulation

DCD

PM/PD31:DRSP
DCDiIanni
06/12/89

(A)D/PD31:DRSP
LYandell
06/12/89

DISTRIBUTION
DOCKET FILE
NRC & LOCAL PDRs
PD31 GRAY FILE
DDIIANNI
PSHUTTLEWORTH
MVIRGILIO
OGC
EJORDAN
BGRIMES
ACRS(10)