



Nebraska Public Power District

Always there when you need us

NLS2006085
October 11, 2006

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555-0001

Subject: Inaccuracy in Response to Request for Additional Information Regarding
Crediting Service Water for Reactor Equipment Cooling Post LOCA
Cooper Nuclear Station, Docket No. 50-298, DPR-46

- References:
- 1) Letter NLS2000020 from John H. Swailes, Nebraska Public Power District, to U.S. Nuclear Regulatory Commission, dated November 14, 2000, "Proposed License Amendment, Service Water Backup to the Reactor Equipment Cooling Post LOCA Response to Request for Additional Information"
 - 2) Letter from Thomas W. Alexion, U. S. Nuclear Regulatory Commission, to J. H. Swailes, Nebraska Public Power District, dated March 13, 2001, "Cooper Nuclear Station - Issuance of Amendment on Crediting Service Water for Reactor Equipment Cooling During a Loss-of-Coolant Accident Event"

The purpose of this letter is to inform the Nuclear Regulatory Commission (NRC) that a statement in the Nebraska Public Power District (NPPD) response to an NRC Request for Additional Information (RAI) (Reference 1) was subsequently determined to contain an inaccurate characterization of the annunciator system. The information provided in this RAI response was reflected in the Safety Evaluation for License Amendment 185 (Reference 2). The NRC was previously advised of this issue in a telephone conversation between David Van Der Kamp, Licensing Supervisor at Cooper Nuclear Station (CNS), and Brian Benney, NRC Project Manager for CNS.

The source of the inaccurate statement is the response to RAI Question 9 in Reference 1. Question 9 reads as follows:

"Since the alarms indicated in the Amendment Request are not essential, what Control Room indications will be used to alert the operator of the need to initiate the SW/REC back-up?"

In part, the NPPD response to this question quoted Updated Safety Analysis Report (USAR) Section VII-1.7.3.6, "Annunciator Circuits." In discussing the design of the annunciator system, the following statement was included:

"Finally, with this circuit arrangement, failure or grounds on any portion of the annunciator system cannot disable the entire annunciator system nor can it cascade down through the d-c battery systems because of the fusing, division of circuits, and isolation of power sources."

The NRC Safety Evaluation contained in Reference 2 included the following discussion:

"Based on the information that was provided by the licensee, it is the staff's understanding that: and (5) even though the control room annunciation and indication for monitoring the status of the REC system are not safety-related or essential, they are highly reliable and diverse. The staff considers the use of control room annunciators as described in the November 14, 2000, supplemental letter (response to Question 9) to be adequate for this particular application because operator action is not immediately necessary and is not anticipated for at least 7 days following event initiation."

In April 2001, a loss of the Ronan annunciator system occurred resulting in a Notification of Unusual Event. This abnormal failure was due to a multiplexer (MUX) power supply failure that caused an additional 65 VAC ripple on the 125 VDC output of the power supply. The MUX Ground Detection Module failed due to the application of the AC voltage to its input. When the Ground Detection Module failed, it shorted the output of both MUX power supplies directly to earth ground, which in turn caused the fuses on both power supply boards to clear and subsequently caused the MUX to transmit a large amount of erroneous alarm data to the Central Control Unit (CCU). This overflowed the microprocessor's event queue and the software program instructed all the MUX's to stop sending alarm information to the CCU until the event queue was processed. This condition was addressed in the CNS Corrective Action Program and included replacement of annunciator system MUX power supplies with a newer version from Ronan that have a 20 year guarantee. These replacements were completed in the first quarter of 2002. This corrected the original failure mechanism of the power supplies in the Ronan system. In addition, preventive maintenance plans for periodic replacement of the MUX power supplies were established, and the procedure for annunciator failures was revised to allow quicker reboot of the affected CCU if the error message "Event Transmission Stopped" is received.

The occurrence of this event contradicts the statement that *"failures or grounds on any portion of the annunciator system cannot disable the entire annunciator system."* The USAR was revised in May 2002 to delete the inaccurate verbiage.

In addition, the impact of the inaccurate statement on the basis for License Amendment 185 has been assessed. The annunciator system is a non-safety related system that is not required to be

single failure proof, although by its inherent design is highly reliable. The event discussed above is the only complete failure of the system that has occurred at CNS to date and is considered a highly abnormal failure. Although CNS has experienced additional Ronan component failures that are identified and addressed within the CNS Corrective Action Program, they have not resulted in a complete failure of the annunciator system.

As stated in our original response to the RAI, in the event of a loss of annunciator circuits, the plant computer system is used as backup for all major plant parameters. Abnormal Procedure 2.4ANN, Annunciator Failure, provides operator actions to be taken upon a loss of annunciation, including monitoring the Plant Management Information System (PMIS), and ensuring station operators monitor affected equipment, systems, and parameters that only have an alarm (i.e., no other Control Room indication). Additionally, Procedure 5.2REC, Loss of REC, provides direction for initiating Service Water (SW) when required for backup of Reactor Equipment Cooling (REC).

In the event of a complete loss of annunciation, there are various PMIS points that can be used to identify the need to initiate SW backup to REC, including the following:

- REC Surge Tank Low Level
- Emergency Core Cooling System (ECCS) Pump Area High Temperatures
- REC Pump Low Discharge Pressure
- REC Flow to Drywell
- REC Heat Exchanger Discharge Header Temperature
- REC Pump Breaker Status

In addition, in the event of a complete loss of annunciation, there are various Control Room indications that can be used to identify the need to initiate SW backup to REC, including:

- ECCS Pump Area Temperatures
- REC Header Pressure
- REC Outlet Header Temperature

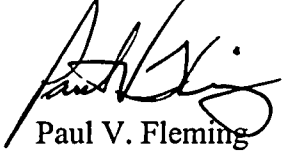
As stated in the Safety Evaluation for License Amendment 185 (Reference 2), even though the control room annunciation and indication for monitoring the status of the REC system are not safety-related or essential, they are highly reliable and diverse. This includes the annunciator system, PMIS, and control board indications. The single system failure that occurred in 2001 does not invalidate the conclusion that control room annunciation and indication for monitoring the status of REC are highly reliable and diverse.

NLS2006085

Page 4 of 4

Should you have any questions concerning this matter, please contact me at (402) 825-2774.

Sincerely,



Paul V. Fleming
Licensing Manager

/lb

cc: Regional Administrator
USNRC - Region IV

Cooper Project Manager
USNRC - NRR Project Directorate IV-1

Senior Resident Inspector
USNRC - CNS

NPG Distribution

CNS Records

Correspondence Number: NLS2006085

The following table identifies those actions committed to by Nebraska Public Power District (NPPD) in this document. Any other actions discussed in the submittal represent intended or planned actions by NPPD. They are described for information only and are not regulatory commitments. Please notify the Licensing Manager at Cooper Nuclear Station of any questions regarding this document or any associated regulatory commitments.

COMMITMENT	COMMITMENT NUMBER	COMMITTED DATE OR OUTAGE
None		