



# Nebraska Public Power District

GENERAL OFFICE  
P.O. BOX 499, COLUMBUS, NEBRASKA 68602-0499  
TELEPHONE (402) 564-8561  
FAX (402) 563-5551

NSD920243  
February 27, 1992

U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D.C. 20555

Gentlemen:

Subject: Followup Response to Recommendations on Station Blackout  
Cooper Nuclear Station  
NRC Docket No. 50-298, DPR-46  
TAC No. 68534

- References: (1) Letter from P. W. O'Connor (NRC) to G. R. Horn dated August 22, 1991, "Cooper Nuclear Station - Safety Evaluation of the Response to the Station Blackout Rule (TAC No. 68534)"
- (2) Letter from G. R. Horn to USNRC dated September 30, 1991, "Response to Recommendations on Station Blackout, 10 CFR 50.63."

The Nebraska Public Power District (District) hereby provides its followup response to the recommendations provided in the NRC Staff's safety evaluation addressing the Cooper Nuclear Station (CNS) compliance with the Station Blackout (SBO) Rule, 10 CFR 50.63 (Reference 1). This response fulfills the commitments made in the District's previous response (Reference 2) to the NRC Staff's recommendations.

The NRC Staff's safety evaluation confirmed that contingent upon satisfactory resolution of several recommendations provided therein, the design of CNS conformed with the SBO rule and associated NRC and NUMARC guidance. Therefore, the District responded to the recommendations provided in the NRC Staff safety evaluation, and committed to follow up with additional, updated information. The recommendations provided in the NRC Staff Safety Evaluation are restated below with the corresponding updated District response.

## RECOMMENDATION NO. 1

The licensee should use data provided in the NUMARC 87-00, i.e., severe weather (SW) group "3" and extremely severe weather (ESW) group "3", or provide further justification to demonstrate that the NUMARC values are not applicable to Cooper Nuclear Station. In lieu of the above, the licensee

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should provide additional plant specific weather data to include the extreme weather conditions in support of its SW and ESW group classifications.

UPDATED RESPONSE

In its earlier response, the District committed to revise the existing CNS plant specific weather calculation to further support its SW and ESW group classifications, and submit the revised calculation to the NRC by March 1, 1992. The District has re-performed this calculation, which is submitted for your information (NEDC 92-023, Attachment 1). This calculation uses conservative statistical methods utilizing data obtained from the CNS meteorological database, the National Severe Storm Forecast Center, and other weather stations in the CNS area. The calculation supports the District's conclusion that CNS is a "P1" plant per NUMARC 87-00; accordingly, for an Emergency AC Power (EAC) category group "C" and an SBO coping duration of four hours, the minimum allowable target diesel reliability for CNS is 0.95.

RECOMMENDATION NO. 2

The licensee should establish a procedure to monitor the condensate level in the emergency condensate storage tanks so as to ensure that the minimum permissible condensate (100,000 gallons) is maintained during plant operation.

UPDATED RESPONSE

In its earlier response, the District committed to update, by March 1, 1992, CNS Procedure 6.2.4.1 to incorporate routine monitoring and recording of the condensate level in the emergency condensate storage tanks. This procedural revision has been completed and implemented.

RECOMMENDATION NO. 3

The licensee should establish a procedure in accordance with the guidance described in NUMARC 87-00 for opening the control room cabinet doors within 30 minutes following a station blackout (SBO) event.

UPDATED RESPONSE

The District committed in its earlier response to revise by March 1, 1992 CNS Station Blackout Emergency Procedure 5.2.5.1 to open the doors of all control room cabinets equipped with backs within 30 minutes following an SBO event. This procedural revision has been completed.

RECOMMENDATION NO. 4

The licensee should verify that the inverters will remain operational during an SBO event.

UPDATED RESPONSE

As indicated in its earlier response, the District has verified that the HPCI inverter and the new RCIC inverter which was installed during the 1991 refueling outage will remain operational during an SBO event. In addition, the District committed to revise CNS Station Blackout Procedure 5.2.5.1 to require that the door to DC Switchgear Room 1A be opened within 30 minutes following an SBO event to support operation of the new no-break power panel inverter which was installed during the 1991 refueling outage. This procedural revision has been completed.

RECOMMENDATION NO. 5

The licensee should perform a heatup calculation for the high pressure coolant injection (HPCI) room and assess the equipment operability in this area.

UPDATED RESPONSE

As indicated in the District's earlier response, the District does not consider the HPCI room a dominant area of concern (DAC) as only one cycle of HPCI operation is required to stabilize reactor water level, after which level can be maintained with the RCIC System. However, to conserve battery energy, the District committed to revise by March 1, 1992, SBO procedures to specify the securing of the HPCI System. The District has revised CNS Station Blackout Procedure 5.2.5.1 accordingly.

RECOMMENDATION NO. 6

The licensee should perform a heatup calculation for the steam tunnel area and assess the equipment operability in this area.

UPDATED RESPONSE

As indicated in the District's earlier response, following initial valve opening, only MOV-RCIC-16 (outboard steam isolation valve) might be required to close. This valve has been environmentally qualified up to 308°F local temperature. The other two DC-powered valves located in the steam tunnel area, MOV-HPCI-19 (injection valve) and MOV-RCIC-21 (injection valve) would be immediately opened to provide coolant injection early in the SBO event, and would not be required to close.

As committed, the District performed a heatup calculation for the steam tunnel area. The District used conservative heat load values and calculated the heat rise using NUMARC 87-00 methodology, which itself is inherently conservative. Using this methodology, the peak steady-state SBO temperature was calculated to be 300°F. Therefore, MOV-RCIC-16 is expected to remain operational to fulfill its containment isolation function during an SBO event.

RECOMMENDATION NO. 7

The licensee should provide, for staff review, a revised analysis of the drywell heatup considering reactor coolant system (RCS) leakage in accordance with the guidance of NUMARC 87-00 (18 gpm per recirculation pump) plus the allowable leakage of 25 gpm to show that the drywell design temperature limit (281°F) will not be exceeded during the four-hour SBO duration.

UPDATED RESPONSE

In its earlier response, the District committed to review with NUMARC, the CNS design basis LOCA analysis to determine if the LOCA analysis bounds drywell heatup during an SBO event assuming Reactor Coolant System leakage of 18 gpm per Recirculation Pump plus the allowable 25 gpm leakage, or to perform a separate analysis of the drywell heatup. The District has performed a separate analysis of drywell heatup using the MAPP 3.0B computer code. This calculation, NEDC 91-261 is attached for your review (Attachment 2).

This analysis predicts a peak drywell temperature of 263°F after four hours compared to the drywell design temperature of 281°F. Additionally, the peak calculated wetwell pressure after four hours is 26 psia which is 11 psi below the RCIC turbine high exhaust trip, while the peak calculated suppression pool temperature is about 160°F, which is approximately 15°F below the Heat Capacity Temperature Limit (HCTL). Based on the results of this analysis, the available injection systems would be expected to operate as designed, no core uncover is expected, and the drywell temperature would not exceed its design temperature limit during a four-hour SBO event.

RECOMMENDATION NO. 8

The licensee should verify that the SBO equipment is covered by an appropriate quality assurance (QA) program consistent with the guidance of RG 1.155. Confirmation that such a program is in place or will be implemented should be included as part of the documentation supporting the SBO rule response.

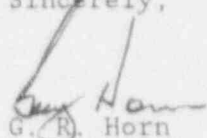
U. S. Nuclear Regulatory Commission  
February 27, 1992  
Page 5 of 5

UPDATED RESPONSE

As indicated in its earlier response, the CNS SBO equipment is covered by the existing QA program which is consistent with the guidance of Regulatory Guide 1.155.

Please contact me if you have any questions or require any additional information.

Sincerely,



G. R. Horn  
Nuclear Power Group Manager

GRH/MJB

Attachments

cc: NRC Regional Administrator  
Region IV  
Arlington, TX

NRC Resident Inspector  
Cooper Nuclear Station