Nebraska Public Power District

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March 23, 1990

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

Subject: Supplemental Response to the Station Blackout (SBO) Rule, 10CFR50.63
Cooper Nuclear Station (TAC No. 68534)
NRC Docket No. 50-298, DPR-46

References: 1) Letter from Byron Lee, Jr. (NUMARC) to NUMARC Board of Directors, dated January 4, 1990, "Station Blackout (SBO) Implementation: Request for SBO Submittal to NRC"

2) Letter NLS8900153, L. G. Kuncl to USNRC, dated April 17, 1989, "Response to Station Blackout Rule, 10CFR50.63"

3) Letter NLS8900284, G. A. Trevors to USNRC, dated August 3, 1989, "Updated Response to Station Blackout Rule, 10CFR50.63"

Gentlemen:

The Nuclear Management and Resources Council (NUMARC) requested in Reference 1 that each utility review their previous Station Blackout (SBO) responses in light of NRC concerns, and confirm that the guidance of NUMARC 87-00 and its attachments was followed and that deviations from the accepted guidance have been identified.

Accordingly, the Nebraska Public Power District (District) has verified that the two previous responses to the Station Blackout Rule, 10CFR50.63, (References 2 and 3) and the supporting documentation and calculations are consistent with the NUMARC 87-00 guidance and the supplemental guidance provided by the attachments to NUMARC 87-00. In addition, the applicability of the NUMARC 87-00 assumptions have also been documented in the District's Station Blackout Coping Assessment Report.

The only significant departure from the accepted NUMARC 87-00 methodology has been previously identified in Reference 3. In Reference 3, the District informed the NRC that, based upon the utilization of plant specific weather data, Cooper Nuclear Station is a P1 weather plant. Therefore, the CNS Emergency Diesel Generator (EDG) target reliability has been established at .95. The CNS plant specific weather data information has been formalized into an approved calculation file for audit purposes.

The District understands that the target reliability of .95 for the CNS EDG must be maintained. At this time, the District expects to utilize NUMARC 87-00, Appendix D, as the guidance document for the CNS EDG maintenance and reliability program. However, the District reserves the right to review the final issue of this document prior to implementation.

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The initial District SBO submittal (Reference 2) did not identify any required modifications to CNS to improve the capability of the station to cope with a station blackout for four hours. There are still no modifications required; however, below please find an updated response to various sections of the Reference 2 submittal.

A. Procedure Description

The District identified initial required procedure revisions and stated that these would be implemented by October 1, 1989. The three procedures listed below were approved by the Station Operations Review Committee (SORC) on October 1, 1989.

EP 5.1.2	Operation During Tornado Watch	Rev. 9
EP 5.2.5	Loss of AC Power	Rev. 19
EP 5.2.5.1	Loss of All AC Power - Station Blackout	Rev. 6

Also, a new District Transmission Procedure, Instruction 7, was generated and approved on September 1, 1989, This instruction, titled "Cooper Nuclear Station, Black Plant Procedure", is a power restoration procedure for CNS. This document describes the interfaces with the remainder of NPPD (non-nuclear) and adjacent power districts to restore power to CNS in the event of a Station Blackout.

In addition, each of the Station Blackout Response guidelines in NUMARC 87-00 were assessed in detail and recommended procedure updates have been identified where appropriate. As per the commitment listed in Reference 2, these procedural changes will be completed six months after the District's receipt of the Station Blackout SER. Most, if not all, of the additional procedure changes affect EP 5.2.5.1, "Loss of All AC Power, Station Blackout."

B. Condensate Inventory

The condensate inventory calculation was revised according to the supplemental guidance, and a 25 gpm leakage rate for each of the recirculation pumps was factored into the four hour blackout period. With this calculation revision, 64,668 gallons of water are required for decay heat removal for the required P1 coping duration. The minimum permissible condensate storage tank level identified in the USAR provides 100,000 gallons of water which exceeds the required quantity for coping with a four hour station blackout event.

C. Class IE Batteries Capacity

The CNS battery capacity calculations were performed pursuant to NUMARC 87-00, Section 7.2.2. These calculations were performed consistent with IEEE 485 and utilized a 70°F electrolyte temperature correction factor. The results document that the CNS 125V and 250V batteries have sufficient capacity to meet the station blackout loads for four hours without any "required" load stripping. Additionally, AC breaker control loads, after the four hour SBO event were included as a part of the battery capacity calculation.

D. Effects of Loss of Ventilation

Subsequent to the District submittal to the NRC in response to the Station Blackout Rule (Reference 2), more detailed room heatup calculations were performed utilizing a computer code for performing transient heat transfer calculations. The DC Switchgear Room calculation utilized the standard NUMARC methodology from the 87-00 document. The results of these calculations are presented below and show the steady state air temperature after four hours.

Area	Temperature
RCIC Room	121°F
DC Switchgear Rooms	127°F
Control Room	100°F

The control room heatup calculation validates the statement made in Reference 2 that the control room is not a dominant area of concern. As stated previously, reasonable assurance of the operability of station blackout response equipment in the above listed dominant areas of concern (RCIC Room, DC Switchgear Rooms) has been assessed using Appendix F, Revision 1, dated October 1, 1988 to NUMARC 87-00 and/or Appendix F Topical report dated October 1988. No modifications or associated procedures are required to provide reasonable assurance of equipment operability in the dominant areas of concern.

E. Containment Isolation

As discussed in Reference 2, the plant list of containment isolation valves has been reviewed to determined those valves which must be capable of being closed or that must be operated (cycled) under station blackout conditions, with indication, independent of the preferred and blacked-out Class 1E AC power supplies. No plant modifications and/or associated procedure changes were determined to be required to ensure that appropriate containment integrity can be provided under SBO conditions.

For this review, the District utilized the five exclusion categories as identified in NUMARC 87-00 document. These categories are:

1. Valves normally locked closed during operation;
2. Valves that fail closed on loss of AC power or air;
3. Check valves;
4. Valves in non-radioactive closed-loop systems not expected to be breached in a station blackout (with the exception of lines that communicate directly with the containment atmosphere);
5. All valves less then 3-inch nominal diameter.

For evaluation purposes, the District also utilized the following three additional categories:

6. At least one valve is DC-powered;

7. At least one valve is normally closed, AC-powered, failing as-is;
8. Valve(s) are normally open, AC-powered, failing as-is, and failure position is acceptable, if not desirable.

Should you have any questions or require additional information, please contact this office.

Sincerely,

G. A. Trevors
Division Manager
Nuclear Support

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cc: U.S. Nuclear Regulatory Commission
Region IV
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NRC Resident Inspector Office
Cooper Nuclear Station

NUMARC