WOLF CREEK
NUCLEAR OPERATING CORPORATION

Forrest T. Rhodes
Vice President
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March 30, 1990
ET 90-0057

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station P1-137
Washington, D. C. 20555

Reference: 1) Letter dated April 17, 1989 from J. A. Bailey, WCNOC to the NRC
2) Letter dated January 4, 1990 from B. Lee, Jr., NUMARC to the NUMARC Board of Directors

Subject: Docket No. 50-482: Supplemental Response to Station Blackout Rule (NRC TAC No. 68628)

Gentlemen:

Attached is Wolf Creek Nuclear Operating Corporation's (WCNOC) supplemental response to the Station Blackout Rule as required by Reference 2. Reference 2 requested that utilities review their responses (Reference 1) to the Station Blackout Rule to address NRC concerns regarding SBO rule responses and implementation of guidance contained in NUMARC 87-00, 'Guidelines and Technical Bases for NUMARC Initiatives Addressing Station Blackout in Light Water Reactors'.

WCNOC has reviewed Reference 1 and supporting documentation. This review has determined that Reference 1 was based on utilization of the NUMARC 87-00 guidance including the clarifications in Reference 2. A deviation from the accepted NUMARC 87-00 guidance was indicated in Reference 1. During this review additional deviations from the NUMARC 87-00 guidance were identified, these items are discussed in the attachment to this letter.

As stipulated in Reference 1, WCNOC has chosen 0.95 as its emergency diesel generator target reliability. WCNOC intends to maintain this target reliability value.

If you have any questions concerning this matter, please contact me or Mr. O. L. Maynard of my staff.

Very truly yours,

Forrest T. Rhodes
Vice President
Engineering & Technical Services

FTR/jad

Attachment

cc: R. D. Martin (NRC), w/a
D. Persinko (NRC), w/a
D. V. Pickett (NRC), w/a
M. E. Skow (NRC), w/a

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Supplemental Response to Station Blackout Rule

Identified below are additional deviations from the accepted NUMARC 87-00 methodology. The detailed analyses and related information are maintained at the Wolf Creek Generating Station and are available for NRC review. The items are numbered consistent with the generic response format utilized in Reference 1.

4. Effects of Loss of Ventilation (Section 7.2.4)

a. Auxiliary Feedwater Pump Room

The calculation for heat transmission into the room from the three high energy pipes was based on the restriction of heat flow due to insulation. A value was used of twice the maximum heat loss allowed by the insulation design specification. This method provides a more realistic result (lower temperature) than the NUMARC 87-00 methodology, but is still conservative as it predicts a temperature buildup higher than actually experienced during preoperational testing.

b. Control Room Complex

The methodology explained in Appendix E of NUMARC 87-00 assumed that the temperature of the room in question is equal to or higher than the surrounding area temperatures. The heat transfer through the ceiling, floor and walls due to increasing temperature gradients across these barriers is conservatively neglected. As the Control Room is normally kept significantly cooler than the surrounding areas, the heat transfer due to temperature gradients during the early portion of the station blackout event cannot be conservatively neglected.

As a result, the heat transmission was determined using a methodology similar to that of Chapter 23 of the 1981 American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) Fundamentals Handbook. The calculation essentially modeled the Control Room Complex as a box. The outcome is conservative as conduits and other penetrations transfer heat out of the room. The heat up of air, walls, floor, ceiling, as well as the upper and lower cable spreading rooms was modeled with respect to time. The steady state control room temperature was determined using design maximum summer conditions. This led to additional conservatism in the analysis.