Nebraska Public Power District

GENERAL OFFICE
P.O. BOX 499, COLUMBUS, NEBRASKA 68601-0499
TELEPHONE (402) 564-8561

NLS8800078
March 25, 1988

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

Gentlemen:

Subject: Proposed Change No. 34 to the Cooper Nuclear Station Technical Specifications
Alternate Shutdown Capability
NRC Docket No. 50-298, DPR-46

Reference: Letter from W. O. Long to G. A. Trevors, dated January 15, 1987, "Technical Specifications for Alternate Shutdown Panels"

In accordance with the applicable provisions specified in 10CFR50 and in response to the letter referenced above, the Nebraska Public Power District requests that the Cooper Nuclear Station Technical Specifications be revised as indicated in Attachment 1. The purpose of these changes is to add operability and surveillance requirements for the alternate shutdown panels.

Attachment 1 contains a description of the proposed changes and the results of the evaluation of the proposed changes with respect to the requirements of 10CFR50.92. Also enclosed are the applicable revised Technical Specification pages.

By copy of this letter and the attachment, the appropriate State of Nebraska Official is being notified in accordance with 10CFR50.91(b).

This proposed change incorporates all amendments to the Cooper Nuclear Station Facility Operating License through Amendment 117 issued February 23, 1988.

This change has been reviewed by the necessary Safety Review Committees and payment of $150 is submitted in accordance with 10CFR170.12.

In addition to the signed original, 37 copies are also submitted for your use. Copies are being sent to the NRC Region IV Office and the CNS Resident Inspector in accordance with 10CFR50.4(b)(2).

A001
1/1
w/check #150
#03-3501

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

Sincerely,

L. G. Kuncl
Nuclear Power Group Manager

LGK/mtb:dmr29/1
Attachment

cc: H. R. Borchert
Department of Health
State of Nebraska

NRC Regional Office
Region IV
Arlington, TX

NRC Senior Resident Inspector
Cooper Nuclear Station

STATE OF NEBRASKA)
)ss
PLATTE COUNTY)

L. G. Kuncl, being first duly sworn, deposes and says that he is an authorized representative of the Nebraska Public Power District, a public corporation and political subdivision of the State of Nebraska; that he is duly authorized to submit this request on behalf of Nebraska Public Power District; and that the statements contained herein are true to the best of his knowledge and belief.

L. G. Kuncl

Subscribed in my presence and sworn to before me this 25th day of March, 1988.

Colleen M. Kuta
NOTARY PUBLIC

GENERAL NOTARY-State of Nebraska
COLLEEN M. KUTA
My Comm. Exp. Aug. 4, 1989

Revised Technical Specifications for
Alternate Shutdown Panels

Revised Pages:		
	i	67d
	48	82b
	49	87a
	67c	

The requirements of 10CFR50, Appendix R, Section III.G.2, specify that where cables and equipment of redundant trains of systems necessary to achieve and maintain hot shutdown conditions are located within the same fire area (outside primary containment), certain separation requirements must be met. Those separation requirements are: 1) separation by a 3 hour rated fire barrier, 2) separation by a horizontal distance of more than 20 feet with no intervening combustibles, or 3) enclosure of one redundant train in a 1 hour rated fire barrier, with fire detection and fire suppression capability.

The District conducted extensive evaluations to ensure compliance with the requirements of 10CFR50, Appendix R. Those evaluations were docketed with the Commission as the CNS Response to 10CFR50, Appendix R, "Fire Protection of Safe Shutdown Capability," Volumes I, II, and III. In certain areas of the plant it was not feasible to make the modifications necessary to comply with Section III.G.2 of Appendix R. Therefore, in accordance with Section III.G.3 of Appendix R, it was necessary to provide alternate shutdown (ASD) capability. The ASD system allows shutdown of the plant independent of the cables, equipment and components required for hot shutdown located in those areas of the plant, where the separation requirements of Section III.G.2 of Appendix R are not met.

As documented in Volume III of the CNS Response to 10CFR50, Appendix R, "Fire Protection of Safe Shutdown Capability," there were eleven (11) areas of the Cooper Nuclear Station (CNS) that did not meet literal compliance with Section III.G.2. Of these, six (6) were addressed by modifications which were approved as exemptions to Appendix R in an NRC letter from D. B. Vassallo to L. G. Kuncl, dated September [illegible] 1982. Alternate shutdown capability is provided for the remaining five (5) areas of the plant. The five areas of the plant are: the control room, the cable spreading room, the cable expansion room, the auxiliary relay room and the northeast corner of the Reactor Building, 903' elevation. The proposed alternate shutdown (ASD) capability was submitted to NRC in a letter dated December 2, 1983. The NRC approved the proposed ASD system in a letter from D. B. Vassallo to J. M. Pilant, dated April 16, 1984. The NRC concluded that the proposed alternate shutdown system at CNS met the requirements of Section III.G.3 and III.L of 10CFR50, Appendix R. The alternate shutdown capability was installed during the Cycle 10 refueling outage.

The purpose of the CNS alternate shutdown system is to provide the ability to shut down the plant in the unlikely event of a fire which disables both divisions of control and instrumentation circuits necessary to shut the plant down from the control room. The alternate shutdown capability is made up of three control panels in the Alternate Shutdown (ASD) Room, local controls for diesel generator No. 2 and manual operation of selected pumps, valves and circuit breakers.

The three ASD panels provide an alternate location from which to operate selected components of the Automatic Depressurization (ADS), High Pressure Coolant Injection (HPCI), Reactor Equipment Cooling (REC) and Residual Heat Removal (RHR) Systems. Also located on these panels are certain process variable indications. These panels are remote from the location of the five (5) areas of the plant that necessitate an alternate shutdown capability and are independent of any equipment located in those areas. Diesel Generator No. 2 is the backup AC power source for the ASD panels. DC power is supplied by the station batteries. The controls for No. 2 Diesel Generator and output breaker EG2 have been modified to ensure startup and operation of the diesel locally.

The Automatic Depressurization System (ADS) is used to control reactor pressure. By using Isolation Switches on the ADS - Alternate Shutdown (ASD) Panel, control of three safety relief valves can be isolated from the control room and controlled at the Alternate Shutdown Panel. The valves may then be used to reduce reactor pressure to where the RHR system, in LPCI mode, can be used to remove decay heat. Also included on ADS-ASD panel are isolation switches and controls for Reactor Equipment Cooling (REC) Pumps C and D. The REC valves are lined-up locally at the motor control centers. The REC system is used to provide cooling to the RHR pumps and the HPCI room area cooler. The torus temperature indicators are also located on the ADS-ASD panel. The torus temperature indicators on the ADS-ASD panel are independent of those in the control room. These redundant sensors do not require isolation switches.

The HPCI system is used to control reactor vessel coolant inventory, while in hot shutdown and to provide coolant makeup while depressurizing. Isolation switches on the HPCI-Alternate Shutdown (ASD) Panel allow isolation from the control room of the HPCI Turbine controls, HPCI Auxiliary Lube Oil Pump, HPCI Fan Coil Unit, the Gland Seal Condensate Pump, HPCI Gland Seal Exhauster, and required motor operated valves. This facilitates operation and testing of the HPCI system from the ASD panel, independent of the control room. Also, indication is provided on the HPCI-ASD panel for HPCI Turbine Speed, Turbine Inlet Pressure, HPCI Pump discharge pressure and flow, torus level, reactor water level, reactor shroud level, ECST level and HPCI pump suction pressure. These are isolated from the control room by isolation switches on the HPCI-ASD panel. This allows the operator to assess the status of reactor coolant, HPCI system flows and pressures, sources of make up water level (torus and ECST), HPCI turbine status (speed and lube oil) and status of system valves.

The Residual Heat Removal (RHR) system is used in the suppression pool cooling mode to cool the torus. This is needed to remove the heat added by the HPCI turbine exhaust and ADS valve discharges. RHR Pump D and Loop B of the RHR system are used. The pump is controlled locally at the pump breaker in Critical Switchgear Room 1G. Certain RHR valves are provided with isolation switches on the RHR-ASD panel. Other RHR valves are aligned locally in the Reactor Building from the motor control center. Indication of Loop B flow is also provided on the RHR-ASD panel to assess system operation. Torus temperature can be monitored on the ADS-ASD panel and torus level can be monitored on the HPCI-ASD panel.

The Service Water system will be used to provide cooling water to the diesel generator, RHR heat exchanger and REC heat exchanger. Service water Pumps C and D will be operated locally in the critical switchgear room and system valves will be operated manually at the MCC.

Valves which are used to isolate the reactor vessel will be de-energized to prevent spurious operation. Diesel Generator No. 2 will provide reliable power to the ASD panels.

Thus, in the unlikely event of a fire in one of the fire areas of the plant which would necessitate shutdown of the reactor from outside the control room, operators could depressurize and cool the reactor from the alternate shutdown panels.

This proposed Technical Specification change adds operability and surveillance requirements for alternate shutdown equipment as Sections 3.2.I and 4.2.I. First, specification 3.2.1.1 requires ASD equipment to be operable during reactor power operations and when the reactor coolant temperature is above 212°F. Tables 3.2.I-1 and 3.2.I-2 identify the required ASD equipment. Specification 3.2.I.2 provides the action statement which requires that if ASD equipment is inoperable, it must be restored within 30 days or the NRC must be notified and provided with plans to restore alternate shutdown capability. Surveillance requirement 4.2.I.1 requires channel checks and channel calibrations of ASD instruments and Table 4.2.I has been added to specify the frequency. Also, Specification 4.2.I.2 has been added to require testing of each isolation switch, power supply and control circuit for the equipment listed in Table 3.2.I-2 once per refueling cycle.

The minimum list of equipment in Tables 3.2.I-1 and 2 is based on those controls and instruments necessary to achieve alternate shutdown. Since this system is only designed to achieve hot shutdown, the operability requirements only apply above 212°F reactor coolant and during power operation. This system has no safety function during normal or abnormal (except certain fire scenarios) operation. Thus, this system is a backup to redundant safe shutdown systems, only designed for use in the unlikely event of a small set of fire scenarios. Based upon this, the action to be taken when ASD components are found to be inoperable is established as restore operability within 30 days or notify the NRC.

The surveillance intervals for instrumentation channel checks and calibration were set at once per cycle. This frequency is based on the desire to conduct this testing during shutdown. These instruments would normally not be powered unless alternate shutdown is required. To achieve indication of the actual process variables on the ASD panels means isolating indication from the control room. This can only be done safely during shutdown. Further, this system provides no safety function during normal operations, transients and all accidents except a small group of fire scenarios. Due to the lack of safety function and the relatively small and unlikely group of scenarios where ASD is used, increased testing is not considered necessary. The once per cycle frequency is considered to meet the guidance of IEEE-338 and Regulatory Guide 1.22.

The surveillance interval for the isolation switches, control circuits and power supplies is set at once per cycle. This is in accordance with the intent of the NRC approved Standard Technical Specifications which specify a

frequency of once per 18 months. The Cooper Nuclear Station refueling cycle is once per 12 months. The primary reason for this interval is that the components must be isolated from the control room, which must be done during shutdown.

This change also moves specifications 3/4.2.D.5 from page 49 to page 48 and adds a Section 3.2.I in the Bases on page 87a. These changes are administrative in nature.

Evaluation of this Amendment with Respect to 10CFR50.92

A. The enclosed Technical Specification change is judged to involve no significant hazards based on the following:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Evaluation:

The Alternate Shutdown (ASD) Capability at Cooper Nuclear Station was installed in accordance with commitments to the NRC and in accordance with the requirements of 10CFR50, Appendix R, Section III.G.3 and III.L. The ASD system is designed such that it will not interfere with any control or instrumentation functions during normal operation. However, during a fire in one of the five plant areas where loss of shutdown capability from the control room is postulated, the ASD system can isolate the necessary controls and instrumentation from the control room, allowing safe plant shutdown. This additional remote shutdown capability increases plant safety in the event of a fire in the control room, cable spreading room, cable expansion room, auxiliary relay room, or the northeast corner of the 903' elevation of the Reactor Building. These are the five areas of the plant where a fire could cause loss of controls and instrumentation necessary to shut down the plant from the control room.

The portions of the ASD system that interface with normal safe shutdown systems are designed, procured and installed to the same specifications as the normal system. The isolation switches are alarmed in the control room to notify operators of transfer of controls and instrumentation from the control room to the ASD panels. The doors to the ASD room are key locked and alarmed in the control room. The isolation switches are essential (safety-related), seismically qualified and environmentally qualified. This proposed Technical Specification Change adds testing requirements to verify operability of controls, instrumentation, isolation switches and power supplies for the ASD system.

The design and operation of the Alternate Shutdown System was described in Volume III of the CNS Response to 10CFR50, Appendix R, "Fire Protection of Safe Shutdown Capability," submitted to NRC in a letter from J. M. Pilant to D. B. Vasallo, dated December 2, 1983. NRC concluded that the ASD design meets the requirements of

Section III.G.3 and III.L of Appendix R, in a letter from D. B. Vassallo to J. M. Pilant, dated April 16, 1984.

Based on the discussion above, this proposed change, to add operability and surveillance requirements for the Alternate Shutdown Capability, does not increase the probability or consequences of any accident previously evaluated.

2. Does the proposed license amendment create the possibility for a new or different kind of accident from any accident previously evaluated?

Evaluation:

This proposed change adds operability and surveillance requirements for the installed alternate shutdown system. The system has been designed to comply with the requirements of 10CFR50, Appendix R, Section III.L and has been found by NRC to meet those requirements.

During normal plant operations, the ASD system is not in use and is isolated from the normal safe shutdown systems. The isolation switches are designed so that they cannot interfere with normal system controls and indication in the control room. Also, during transients or accidents (except a fire in one of the five areas requiring alternate shutdown) the ASD system remains isolated and all control and indication is maintained in the control room. Only in the event of a fire in one of the five areas, that makes shutdown of the plant from the control room impossible, would control of plant shutdown be transferred to the Alternate Shutdown System.

The ASD System is only used when responding to a small set of identified fire scenarios. The ASD controls and instrumentation are only used to control the normal mode of HPCI, RHR Torus Cooling, ADS and REC, during a fire involving one of the 5 areas requiring alternate shutdown. At all other times the system is idle, isolated from the plant and cannot affect plant equipment. Thus, the ASD System cannot create the possibility of any new or different kind of accident.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Evaluation:

This change reflects the addition of an Alternate Shutdown System, installed as a means of placing the plant in hot shutdown, independent of the five areas which require alternate shutdown capability. This system adds a level of protection that is a backup to the existing redundant trains of the safe shutdown systems. The ASD system increases the margin of safety by improving plant capability to shutdown, in the unlikely event of certain fire scenarios. Based on the above, this proposed change does not decrease any margin of safety.

B. Additional basis for proposed no significant hazards consideration determination:

The Commission has provided guidance concerning the application of the standards for determining whether a significant hazards consideration exists by providing certain examples (48FR14870). The examples include "(ii) a change that constitutes an additional limitation...." The District considers this change to fall under this example.