

APPENDIX B

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-298/87-31

License: DPR-46

Docket: 50-298

Licensee: Nebraska Public Power District (NPPD)
P. O. Box 499
Columbus, NE 68601

Facility Name: Cooper Nuclear Station (CNS)

Inspection At: Cooper Nuclear Station, Nemaha County, Nebraska

Inspection Conducted: December 1-21, 1987

Inspectors: E. A. Plettner 12/23/87
E. A. Plettner, Resident Inspector, (RI) Date

W. R. Bennett 12/23/87
W. R. Bennett, Senior Resident Inspector, (SRI) Date

Approved: E. J. Holler 1/5/88
E. J. Holler, Chief, Project Section C,
Reactor Projects Division Date

Inspection Summary

Inspection Conducted December 1-21 1987 (Report 50-298/87-31)

Areas Inspected: Routine, unannounced inspection of operational safety verification, monthly surveillance and maintenance observations, radiological protection, cold weather preparation, and security.

Results: Within the areas inspected, one apparent violation was identified (failure to perform an adequate 10 CFR 50.59 evaluation of a design change to the power supply for a primary containment isolation valve).

DETAILS1. Persons ContactedPrincipal Licensee Employees

- *G. A. Trevors, Nuclear Support Division Manager
- *G. R. Horn, Division Manager of Nuclear Operations
- *J. M. Meacham, Technical Support Senior Manager
- *G. E. Smith, Quality Assurance Manager
- *E. M. Mace, Engineering Manager
- *L. E. Bray, Regulatory Compliance Specialist

The NRC inspectors also interviewed additional licensee employees during the inspection period.

*Denotes those present during exit interview conducted on December 21, 1987.

2. Inadequate Design Review

This area of inspection was conducted to review a licensee identified problem with adequacy of design review regarding Drywell Exhaust Bypass Valve PC-MOV-306MV.

On November 12, 1987, during a design change review to upgrade the motor control centers, the licensee determined that the power supply to PC-MOV-306MV may not conform to all appropriate design criteria. This motor operated valve is located in a 2-inch line used to bypass the 24-inch Drywell Exhaust Inboard Isolation Valve. Further detailed review confirmed that PC-MOV-306MV indeed was powered from a source which would not automatically sequence back on the bus when its diesel generator started because of a loss of offsite power. During an accident with a complete loss of offsite power, the valve would fail in the as-is condition. The valve was placed on this power source by Design Change 80-064 which was approved on November 24, 1980, and completed on June 17, 1981. The requirement for maintaining containment isolation ability during a design basis Loss of Coolant Accident (LOCA) apparently was not addressed during the review and approval process of Design Change 80-064. The failure to perform an adequate design review is an apparent violation of 10 CFR 50.59. (298/8731-01)

On November 25, 1987, the licensee issued Special Order 87-05 requiring that PC-MOV-306MV be maintained in the normally closed position during power operation. After review of pertinent correspondence between the NRC and NPPD which generated the development of the Design Change 80-064, the licensee, on December 3, 1987, made a report to the NRC in accordance with 10 CFR 50.72 and issued a subsequent Licensee Event Report on December 14, 1987.

The power source for PC-MOV-306MV could cause a potential for offsite release during a design basis LOCA while PC-MOV-306MV was open with a concurrent failure of the Drywell Exhaust Outboard Isolation Valve to close. Discussions with licensee personnel indicate that PC-MOV-306MV has only been open on the order of a few minutes per month during power operation. The licensee has committed to powering PC-MOV-306MV from a nonload-shedding motor control center which is automatically reenergized by a diesel generator subsequent to a complete loss of offsite power.

3. Operational Safety Verification

The NRC inspectors observed operational activities throughout the inspection period. Control room activities were observed to be well controlled. Proper control room staffing was maintained. Discussions with operators indicated that they were cognizant of plant status and understood the importance of, and reason for, each lit annunciator. The NRC inspectors observed selected shift turnover meetings and noted that information concerning plant status was communicated to the oncoming operators. Tours of accessible areas at the facility were conducted to confirm operability of plant equipment including the fire suppression systems and other emergency equipment. Overall plant cleanliness was good.

On December 10, 1987, reactor operators were placing the torus into suppression pool cooling using "A" Residual Heat Removal (RHR) pump. The operator closed the switch to close the pump circuit breaker of "A" RHR, but the pump failed to start. The operator released the switch and tried the sequence again with a successful pump start. A similar sequence of events occurred on November 25, 1987, involving "C" RHR pump. After each occurrence the licensee performed the required Technical Specification (TS) surveillances, declared the effected RHR pump inoperative and performed an inspection of the effected breaker. In each instance, inadequate lubrication on parts of the mechanical linkage was determined to be the cause of the breaker malfunction. Corrective maintenance was performed and the effected breaker was returned to service after adequate testing.

The NRC inspectors expressed concern to the licensee that the same malfunction had occurred in the same type breaker within a 15-day time frame. The licensee shared the NRC inspectors' concerns and performed a visual inspection on 10 additional breakers of the same type as plant conditions would permit. No deficiencies were found. The licensee's preventive maintenance schedule for performing lubrication on the breakers had been changed from annual to biannual on July 22, 1986. The vendor manual recommends that lubrication be performed on the breakers on a periodic basis but not to exceed 2 years. The vendor manual also recommends that maintenance be performed on a more frequent basis when increased cycling of the breaker occurs. The licensee is continuing to research the breaker problem to determine if there are any other contributing factors to the malfunctioning of the 2 RHR pump breakers.

The results of this research and determination of preventive maintenance requirements will be tracked as an open item. (298/8731-02)

No other violations or deviations were identified in this area.

4. Monthly Surveillance Observations

The NRC inspectors observed the performance of Surveillance Procedure (SP) 6.3.6.1, "Reactor Core Isolation Cooling (RCIC) Test Mode Surveillance Operation," and Nuclear Performance Procedure 10.22, "Receiving and Handling Unirradiated Fuel."

SP 6.3.6.1, "RCIC Test Mode Surveillance Operation," Revision 12, dated October 22, 1987: This procedure was performed on December 10, 1987, to meet the RCIC pump operability requirements of TS. Testing was performed in accordance with approved procedures and deficiencies documented and corrected. The NRC inspector observed that the procedure was performed by qualified personnel who were cognizant of the surveillance requirements. Training was given to a reactor operator trainee during the performance of this surveillance. The NRC inspector observed that the trainee was told the purpose of the surveillance, what indications to expect during the surveillance, and what the significance was of each operation during the surveillance. Test results were verified by the NRC inspector to conform with TS and procedure requirements.

Nuclear Performance Procedure 10.22, "Receiving and Handling Unirradiated Fuel," Revision 1, dated October 16, 1986: This procedure was performed on December 9, 1987, to verify that fuel was received with no obvious damage to shipping crates and that it was properly stored. Fuel was received on December 9, 1987, in preparation for the refueling outage scheduled to begin in February 1988. The NRC inspector observed that crates were inspected for damage and that serial numbers were verified and recorded in accordance with the procedure. Fuel was moved and stored in accordance with procedure on the refueling deck.

No violations or deviations were identified in this area.

5. Monthly Maintenance Observation

The NRC inspectors verified that the maintenance activities were conducted in accordance with approved procedures, regulatory guides, and industry codes or standards and in conformance with TS.

The following station maintenance activities of safety-related systems and components were observed and reviewed by the NRC inspectors on the indicated dates:

December 7, 1987: Screen Wash Pump 1C Work Item 87-3667

No violations or deviations were identified in this area.

6. Radiological Protection Observations

The NRC inspectors verified that selected activities of the licensee's radiological protection program were implemented in conformance with facility policies, procedures, and regulatory requirements. Radiation work permits contained appropriate information to ensure that work could be performed in a safe and controlled manner. Personnel in radiation controlled areas were wearing the required personnel monitoring equipment and protective clothing. Radiation and/or contaminated areas were properly posted and controlled based on the activity levels within the area. Radiation monitors were utilized to check for contamination.

No violations or deviations were identified in this area.

7. Cold Weather Preparation

IE Bulletin 79-24, "Frozen Lines," requested the licensee to verify that adequate protective measures had been taken to prevent safety-related process, instrument, and sampling lines from freezing during extremely cold weather. The NRC inspectors reviewed individual plant system operating procedures to ensure they identified heating requirements and equipment. These included power supplies, temperature controls and settings, indication circuits, insulation requirements, heat tracing, and space heaters. Backup freeze protection was provided in areas that are normally kept warm by heat loss from operational systems. Plant procedures used during maintenance or modification of existing systems provided reasonable assurance that cold weather protective measures were reestablished following completion of those activities.

Plant preventive maintenance requirements associated with cold weather preparation were completed by the licensee on October 26, 1987.

The NRC inspectors reviewed or performed walkdowns of the following during the inspection:

- . Preventive Maintenance (PM) routine 04047 and 01271
- . General Operating Procedure GOP 2.1.11, "Station Operators Tour" Revision 47, dated December 3, 1987
- . Attachment "C" to GOP 2.1.11 "Station Operators Tour - R/W, AOG, ARW Areas and Outside"
- . System Operation Procedure (SOP) 2.2.30 "Fire Protection System," Revision 27, dated July 16, 1987

The discussions, reviews, and walkdowns were performed to verify that the licensee has maintained an effective program of cold weather protective measures for safety-related components and systems.

No violations or deviations were identified in this area.

8. Security

The NRC inspectors observed security personnel perform their duties of vehicle, personnel, and package search. Vehicles were properly authorized and escorted or controlled within the protected area (PA). The PA barrier had adequate illumination and the isolation zones were free of transient material. Compensatory measures were implemented in a timely manner when equipment failed. These observations verified that the physical security plan was being implemented in accordance with the requirements established in the CNS Operating License.

No violations or deviations were identified in this area.

9. Exit Interviews

An exit interview was conducted on December 21, 1987, with licensee representatives (identified in paragraph 1). During this interview, the senior resident inspector and the resident inspector reviewed the scope and findings of the inspection.