APPENDIX

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-298/85-02 License:DPR-46

Docket: 50-298

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

Facility Name: Cooper Nuclear Station (CNS)

Inspection At: Cooper Nuclear Station, Nemaha County, Nebraska

Inspection Conducted: January 1-31, 1985

Inspector: for D. L. DuBois, Senior Resident Inspector (SRI) 2/22/85
Date

Approved: J. P. Jaudon, Chief, Project Section A, Reactor Project Branch 1 2/22/85
Date

Inspection Summary

Inspection Conducted January 1-31, 1985 (Report 50-298/85-02)

Areas Inspected: Routine, unannounced inspection of operational safety verification, monthly surveillance and maintenance observation, licensee event followup, IE bulletins, and followup of inspector identified items including open items, violations, and unresolved items. The inspector involved 94 inspector-hours onsite by one NRC inspector.

Results: Within the six areas inspected, no violations or deviations were identified.

DETAILS

1. Persons Contacted

Nebraska Public Power District

*P. Thomason, Division Manager, Nuclear Operations
*D. Norvell, Maintenance Manager
*J. Meacham, Technical Manager
*D. Reeves, Training Manager
*J. Sayer, Senior Technical/Radiological Advisor
*R. Beilke, Chemistry/Health Physics Supervisor
*R. Black, Assistant Operations Supervisor
*G. Smith, Senior Quality Assurance Specialist
*L. Clark, Electrical Supervisor
*L. Bray, Administrative Secretary

The NRC inspector also interviewed other licensee and contractor personnel including operations, maintenance and clerical personnel.

*Indicates persence at exit meeting.

2. Followup of Inspector Identified Items

a. (Closed) 8215-01 (Open Item) - Technical Specification Change to Indicate NRC Licensed Operater Shift Manning Requirements.

10 CFR Part 50.54 (m)(2)(i) requires the licensee to maintain a minimum of two licensed senior reactor operators and two licensed reactor operators on each shift when the nuclear plant is operating.

CNS Procedure 2.0.3, "Control Room Conduct and Manning," Revision 0, dated September 27, 1984, lists specific shift manning requirements which meet the requirements of 10 CFR Part 50.54. Further, the licensee submitted Proposed Change No. 16 to the Technical Specification in a letter from Mr. L. G. Kuncl (NPPD) to Mr. D. B. Vassallo (NRC), dated December 20, 1984. Proposed Change No. 16 includes a revision to Section 6.1 which states the requirements for shift manning as outlined in 10 CFR Part 50.54.

This item is closed.

b. (Closed) 8324-01 (Unresolved Item) - Control of Surveillance Tests by CNS Procedure 1.9, Surveillance Program."

This item concerns possible inadequacy of licensee procedure 1.9 and/or a surveillance schedule deficiency which caused the requirement to leak check radioactive sources within a 6-month frequency to be exceeded. Also, procedure 1.9 did not indicate whether surveillance tests such as safety relief valve testing,

snubber testing, and source leakage testing are the responsibility of the plant surveillance coordinator or other designated persons.

The SRI reviewed CNS Procedure 1.9, Revision 8, dated July 6, 1984, and verified that it assigns responsibilities for the scheduling, performance and review of all plant tests and surveillances. Also, the SRI reviewed the status of those tests and inspections that are maintained by the designated department personnel and found them to be current and complete. Procedure 1.9 presently assigns the performance of safety relief valve testing, subber testing, and source leakage testing to the departments that perform each of the specified tests. The SRI reviewed the radioactive source leak check analysis schedule and status board to insure that the 6-month frequency is not subject to an automatic 25% allowable extension.

This item is closed.

c. (Closed) 8331-01 (Violation) - Failure to Meet a Technical Specification Limiting Condition for Operation - Loading Fuel Into the Reactor Core With Control Rods not Fully Inserted.

On May 25, 1983, the licensee loaded a fuel bundle into the reactor core with five control rods fully withdrawn. Prior to the occurrence, licensee personnel had removed the fuel bundle from the core in order to perform an underwater inspection of an adjacent fuel support piece. Prior to, during, and following the period of time that the fuel bundle was removed from and reinstalled into its assigned core position, five control rods were maintained in the fully withdrawn position. No other core alterations were performed during the time the fuel bundle was removed. However, the CNS Technical Specification requires that control rods be fully inserted prior to loading fuel into the reactor core.

The licensee reported this occurrence to the NRC in Licensee Event Report (LER) 50-298-83-12, dated July 21, 1983. Also, NPPD responded to this violation in a letter from Mr. J. M. Pilant, (NPPD) to Mr. E. H. Johnson (NRC-RIV), dated January 18, 1984. The SRI verified that the licensee completed all of the below-listed corrective actions and commitments made in response to this violation and LER 83-12:

- The Operations supervisor discussed the occurrence with the affected refueling floor supervisor and reactor engineering representatives.

- This occurrence and other Technical Specification related information was discussed at operation group crew meetings and training sessions.

- Affected plant procedures were reviewed for adequacy and revised as follows: (1) 1.3, "Procedures," Revision 11, dated September 1, 1983, changed to clarify the requirement that two

senior reactor operators (SROs) are authorized to make temporary changes to operating procedures. (2) 7.4.14, "Control Rod, Fuel Support Casting, and Blade Guide Removal and Installation," Revision 13, dated June 28, 1984, implemented the following changes:

a. Added references to applicable Technical Specification requirements.

b. Included precautionary notes within the body of the procedure which cautions against withdrawing more than one control rod unless the control cells are verified to be empty.

c. Added a part C to Attachment "A", "Control Rod Transfer Form," which requires verification that all withdrawn rods are fully inserted prior to loading fuel into core.

d. The reactor engineering group has revised the methodology for control rod swapping/replacement which places control rod movement as a separate part of refueling operations. Further, no fuel movement is permitted while control rod swapping/replacement is in progress.

(3) 10.25, "Refueling," Revision 2, is presently in the review and approval process. Revision 2 will add to sections VI and VII precautionary statements concerning the requirement that fuel will not be loaded into the core unless all control rods are fully inserted except when utilizing the approved spiral loading technique.

The SRI independently verified that the licensee completed all of the above actions.

This item is closed.

d. (Closed) 8332-01 (Open Item) - Update CNS Techninical Specification and Procedures to Reflect the New Training Organization.

The SRI reviewed and verified implementation of the following documentation revisions:

- The CNS Technical Specification, Amendment 85, revised paragraph 6.1.4, "Plant Staff - Qualifications," and Figure 6.1.2, "NPPD Cooper Nuclear Station Organization Chart," to indicate the present training organization.

- CNS Procedure 0.2, "Station Organization and Responsibility," Revision 0, dated September 28, 1984, discusses the current training organization.

. CNS Procedure 0.17, "Selection and Training of Station Personnel," Revision 0, dated September 28, 1984, also discusses the present training organization.

This item is closed.

e. (Closed) 8404-02 (Unresolved Item) - Inadequate Definition of the Technical Specification Term OPERABLE.

The CNS Technical Specification, Section 1.0.M, presently defines OPERABLE as, "Operable means a system or component is capable of performing its intended function in its required manner." The definition does not address the necessity to have subsystems, attendent instrumentation, controls, electrical power, cooling or seal water, lubrication, or other auxiliary equipment available, which is necessary in order for a system or component to perform its intended function.

In a letter from Mr. L. G. Kuncl to Mr. D. B. Vassallo, dated December 20, 1984, the licensee submitted Proposed Change No. 16 to the CNS Technical Specification. The licensee's proposed change revises the definition of OPERABLE to conform with NUREG - 0123, Revision 3, Standard Technical Specification, which includes the requirement for availability of auxiliary and/or support systems such as those listed above.

This item is closed.

3. Followup of Licensee Event Reports (LERs)

The following LERs are closed on the basis of the SRTs inoffice review, review of licensee documentation, and dicsussions with licensee personnel:

81-015 Excessive Primary Containment Leakage
82-015 Excessive Primary Containment Leakage
83-013 Excessive Primary Containment Leakage

4. Followup of IE Bulletins (IEBs)

a. (Closed) IEB 79-11, "Faulty Overcurrent Trip Device in Circuit Breakers for Engineered Safety Systems."

IEB 79-11 was issued May 22, 1979, as a result of an engineered safety system circuit breaker prematurely tripping because of insufficient time delay in overcurrent protection. This operating characteristic could cause a safety system motor breaker to inadvertantly trip on normal starting inrush current, thus rendering the motor unavailable to perform its intended safety function. Th cause of premature tripping was determined to be the formation of small hairline cracks in one of the motor breaker overcurrent time delay dashpot end caps. The affected circuit breaker was a

Westinghouse type DB-75. Westinghouse type DB-50 breakers also use the same type of dashpot and end cap.

IEB 79-11 required all holders of an operating license or construction permit to perform the following actions:

. Determine whether circuit breakers of the above described manufacturer and type with overcurrent trip devices are in safety-related Class 1E service or in spares at their facilities.

. If the subject breakers are in service in safety-related systems: within 30 days, review the existing test data for all overcurrent trip device calibrations since plant startup or since replacement caps were installed and tested in response to Bulletin 73-1, whichever is most recent. Determine if any delay times are: (1) outside of the acceptance band; (2) marginally acceptable - on the low side of the acceptance band; or (3) if any significant change in delay time performance has been observed. These break-ers should be retested and end caps replaced as necessary to assure no loss of safety function.

. Inspect all end caps in spares for cracks using at least a 3x magnifying glass. Caps having visible flaws should be discarded, or prevented from use in Class 1E applications.

. Review test procedures and test schedules for all safety-related circuit breakers to assure that all such breakers are tested at least each refueling outage to confirm overcurrent time delay protection.

. Submit a written report of the above actions within 45 days of receipt of this bulletin.

The licensee responded to IEB 79-11 in a letter from Mr. J. M. Pilant (NPPD) to Mr. K. Seyfrit (NRC-RIV), dated June 7, 1979. The following is a synopsis of the licensee's response:

. Westinghouse type DB-75 breakers are not used at CNS.

. Westinghouse type DB-50 breakers are used in the 480V AV, 125V DC, and 250V DC safety-related Class 1E distribution systems at CNS.

. The type DB-50 breakers used in the 480V AC system were modified during March and April 1979. The modification replaced the dashpots with a static solid state trip device as recommended by Westinghouse.

- The type DB-50 breakers used in the DC systems were tested during April 1979 and were found to trip within acceptable limits.

- Spare end caps were inspected for cracks and none were discovered.

- All type DB-50 breakers shall be tested during each refueling outage.

An initial inspection of licensee actions applicable to the requirements of IEB 79-11 was performed by the NRC and documented in NRC Report 50-298/79-14. The SRI completed an additional followup inspection of the licensee's response to IEB 79-11 during this reporting period and verified that required actions were performed as stated. Also, the SRI reviewed Maintenance Procedure 7.3.2, "Low Voltage Circuit Breakers Setting, Testing, and Maintenance," Revision 8, dated January 11, 1985, and determined that it adequately addresses overcurrent trip device testing including methodology, acceptance criteria, and circuit breaker cubicle cleanliness controls. The SRI reviewed completed test 7.3.2.data for 1984 and concluded that the license is meeting the required test frequency and that degradation of the overcurrent trip devices and setpoints was not indicated. The SRI also reviewed Minor Design Change (MDC) 80-50 and verified that the type DB-50 breakers used in the 480V AC system were modified as described in the licensee's response.

b. (Closed) IEB 83-08, "Electrical Circuit Breakers With an Undervoltage Trip Feature in use in Safety-Related Applications Other Than the Reactor Trip System."

IEB 83-08 was issued December 28, 1983, as a result of a failure of undervoltage trip attachments (UVTAs) to trip associated breakers when a trip condition was present. Most of the undervoltage trip problems are associated with reacter trip breakers. However, subsequent investigation revealed that breakers with similiar undervoltage trip features are used in other safety-related applications. The UVTA failures have been caused by improper or infrequent lubrication of linkages or other moving parts, dust/dirt contamination of the lubricant in the trip shaft bearings, or improper adjustment of the UVTA spring tension. Failures appear to be associated with either Westinghouse Westinghouse type DB, Westinghouse type DS, or General Electric (GE) type AK-2 circuit breakers.

IEB 83-08 required the licensee to perform the following actions:

- Identify applications of the above type breakers in use in safety-related systems at CNS.

- For each circuit breaker type identified above, perform the following:

  (1) Review and evaluate the design of the UVTA and connecting linkage including any safety application, alignment, lubrication, or adjustment problems.

  (2) Describe the current breaker surveillance program, including the test frequency, methodology, and response time measurement of the UVTA devices.

  (3) Provide a list of breaker malfunctions associated with the UVTA, including connecting linkages and latching mechanisms.

  (4) Describe any preventive or corrective measures that were taken based upon the results of items (1), (2), and (3) above. Include necessary revisions to the surveillance test program.

- Submit a written report to the NRC within 90 days which addresses the above required actions.

The licensee responded to the requirements of IEB 83-08 in a letter from Mr. L. Kuncl (NPPD) to Mr. J. Collins (NRC-RIV), dated March 27, 1984. The licensee's response included the following:

- CNS has 12 Westinghouse type DB-50 breakers with UVTAs. They are used as 480V feeder breakers to the reactor building motor control centers.

- CNS will implement, upon receipt, the manufacturer's recommendations to improve breaker reliability.

- DB-50 breakers are tested once per year. Operation of the UV trip device is verified during the annual test.

- There have been no breaker failures experienced at CNS caused by the UV trip devices.

- Based upon 10 years operating experience, the Westinghouse DB-50 breakers have proven to be very reliable.

The SRI verified the completion of licensee actions listed above. He also reviewed Westinghouse Nuclear Service Division Technical Bulletin NSD-TB-83-02, including subsequent revisions, and confirmed that the licensee has included the recommendations for the lubrication, adjustment, cleaning, test, and maintenance of the DB-50 breakers in CNS Maintenance Procedure 7.3.2, "Low Voltage Circuit Breaker Setting, Testing, and Maintenance." CNS does not use

Westinghouse type DS or GE type AK-2 circuit breakers in safety-related systems.

5. Operational Safety Verification

The SRI observed control room operations, instrumentation, controls, reviewed plant logs and records, conducted discussions with control room operators, and conducted system walk-downs to verify that:

- Minimum shift manning requirements were met.
- Technical Specification requirements were observed.
- Plant operations were conducted using approved procedures.
- Plant logs and records were complete, accurate, and indicative of actual system conditions and configurations.
- System pumps, valves, control switches and power supply breakers were properly aligned.
- Licensee systems lineup procedures/checklists, plant drawings, and as-built configurtations were in agreement.
- Instrumentation was accurately displaying process variables and protection system status to be within permissible operational limits for operation.
- Plant equipment that was discovered to be inoperable or was removed from service for maintenance was properly identified, redundant equipment was verified to be operable, applicable limiting conditions for operation were identified and maintained.
- Equipment safety clearance records were complete and indicate that affected components were removed from and returned to service in a correct and approved manner.
- Maintenance work requests were initiated for equipment discovered to require repair of routine preventive upkeep, appropriate priority was assigned, and work commenced in a timely manner.
- Plant equipment conditions, such as cleanliness, leakage, lubrication, and cooling water are controlled and adequately maintained.
- Areas of the plant are clean, unobstructed, and free of fire hazards. Fire suppression systems and emergency equipment are maintained in a condition of readiness.
- Security measures and radiological controls are adequate.

The SRI performed lineup verifications of the following systems:

. Service Water

. Cable Spread Room Fire Protection

. Spent Fuel Pool Cooling

. Standby Liquid Control

The tours, reviews, and observations were conducted to verify that facility operations were performed in accordance with the requirements established in the CNS operating license and Technical Specification.

No violations or deviations were identified in this area.

6. Monthly surveillance Observations

The SRI observed Technical Specification required surveillance tests. These observations verified that:

. Tests are accomplished by qualified personnel in accordance with approved procedures.

. Procedures conform to Technical Specification requirements.

. Test prerequisites were completed including conformance with applicable limiting conditions for operation, required administrative approval, and availability of calibrated test equipment.

. Test data was reviewed for completeness, accuracy, and conformance with established criteria and Technical Specification requirements.

. Deficiencies were corrected in a timely manner.

. The system was returned to service.

The reviews and observations were conducted to verify that facility surveillance operations were performed in accordance with the requirements established in the CNS operating license and Technical Specification.

No violations or deviations were identified in this area.

7. Monthly Maintenance Observation

The SRI observed preventive and corrective maintenance activities. These observations verified that:

. Limiting conditions for operation were met

- Redundant equipment was operable
- Equipment was adequately isolated and safety tagged.
- Appropriate administrative approvals were obtained prior to commencement of work activities.
- Work was performed by qualified personnel in accordance with approved procedures.
- Radiological controls, cleanliness practices and appropriate fire prevention precautions were implemented and maintained.
- Quality control checks and postmaintenance surveillance testing were performed as required.
- Equipment was properly returned to service.

The SRI independently verified the following clearance orders for proper placement/restoration of affected components:

- 84-801 Reactor Recirculation Pump Motor Generator
- 85-080 Core Spray System Valve 5B
- 85-153 Number One Diesel Generator

The SRI observed the following maintenance activities:

- "B" Reactor Feedwater Pump Turbine Inspection
- Main Turbine Inspection
- Main Turbine DEH P2000 Computer Installation
- Main Steam Bypass Valves Overhaul
- Number Two Diesel Generator Inspection
- Reactor Recirculation System Piping Replacement

These reviews and observations were conducted to verify that facility maintenance operations were performed in accordance with the requirements established in the CNS operating license and Technical Specification.

No violations or deviations were identified in this area.

8. Exit Meetings

Exit meetings were conducted at the conclusion of each portion of the inspection. At these meetings, the scope and findings of the inspection segments were briefed.