

APPENDIX

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-298/83-34

Docket: 50-298

License: DPR-46

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: December 1-31, 1983

Inspector: D. M. Hunnicutt
for D. L. DuBois, Senior Resident Inspector (SRI)

1/19/84
Date

Approved: D. M. Hunnicutt
D. M. Hunnicutt, Chief
Reactor Project Section A

1/19/84
Date

Inspection Summary

Inspection Conducted December 1-31, 1983 (Report 50-298/83-34)

Areas Inspected: Routine, announced inspection of operational safety verifications, monthly surveillance and maintenance observations, plant trips - safety system challenges, followup of previously identified items, and station operations review committee. The inspection involved 71 inspector-hours onsite by one NRC inspector.

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

DETAILS

1. Persons Contacted

Principal Licensee Employees

- *P. Thomason, Division Manager of Nuclear Operations
- *V. Wolstenholm, Quality Assurance Manager
- *J. Meacham, Technical Manager
- *K. Wire, Operations Manager
- *D. Whitman, Technical Staff Manager
- *G. Mace, Plant Engineering Supervisor
- *P. Ballinger, Reactor Engineering Supervisor
- *F. Reavis, Security Supervisor
- D. Sheesley, Security Account Supervisor
- R. Gardner, Shift Supervisor
- M. Wolken, Outage Coordinator
- *L. Bednar, Lead Electrical/I&C Supervisor

In addition to the above personnel, the SRI held discussions with other various licensee employees.

*Denotes presence at exit meetings.

2. Operational Safety Verification

The SRI observed control room operations, instrumentation, controls, reviewed applicable logs, and conducted discussions with control room operators. The SRI verified operability of:

- . "B" Core Spray System
- . 480 VAC Vital Electrical Distribution System
- . Nuclear Instrumentation System
- . Automatic Depressurization System
- . Numbers 1 and 2 Diesel Generators

The SRI reviewed safety clearance records, including verification, that affected components were removed from and returned to service in a correct and approved manner, that redundant equipment was verified operable, and that limiting conditions for operation were adequately identified and maintained. The SRI also verified that maintenance requests had been initiated for equipment discovered to require repair or routine preventive upkeep, appropriate priority was assigned, and maintenance commenced in a timely manner commensurate with assigned priorities.

Tours of accessible areas of the facility were conducted to verify that minimum shift crew requirements were met, to observe normal security practices, plant and equipment conditions including cleanliness, radiological controls, fire suppression systems, emergency equipment, potential fire hazards, fluid leaks, excessive vibration, and instrumentation adequacy.

The SRI reviewed the following procedure revisions:

2.4.9.1.4	Revision 5	High Level in Moisture Separator
5.7.4	Revision 2	Site Area Emergency Implementing Procedure
5.7.24	Revision 2	Medical

These reviews and observations were conducted to verify that facility operations were in conformance with the requirements established in the Technical Specification, 10 CFR, and administrative procedures.

No violations or deviations were identified in this area.

3. Monthly Surveillance Observations

The SRI observed Technical Specification required surveillance tests to verify that test prerequisites were completed, testing was completed, testing was performed in accordance with approved procedures, test instrumentation was in calibration, limiting conditions for operation were met, removal and subsequent restoration of affected components were accomplished, test results conformed with Technical Specification and procedure requirements, tests were reviewed by personnel other than the person directing the test, and deficiencies identified during testing were properly reviewed and resolved by appropriate management personnel.

The following surveillance tests were selected and observed:

6.1.18	Revision 21	Recirculation Flow Unit Calibration and Functional Test
6.3.12.1	Revision 13	Diesel Generator Operability Test
6.3.18.3	Revision 11	Service Water Surveillance Operation
7.5.2.2	Revision 7	Intermediate Range Monitor Calibration Procedure

The SRI reviewed the following surveillance procedure revisions:

6.3.15.1	Revision 11	Station Battery Quarterly Check
7.5.2.2	Revision 8	Intermediate Range Monitor Calibration Procedure
8.6.4	Revision 9	Liquid Process Radiation Monitor Radwaste
9.3.6.1	Revision 8	Low Volume and High Volume Air Sampler Operation and Calibration
9.5.3.1	Revision 0	Radioactive LSA Waste Shipment for Burial
9.5.4.2	Revision 5	Solid Radioactive Waste Calculations
9.6.1	Revision 3	Monitoring for Industrial Gases
9.6.1.3	Revision 2	MSA Carbon Monoxide Monitoring Systems Operation and Calibration

These reviews and observations were conducted to verify that facility operations were in conformance with the requirements established in the Technical Specification, 10 CFR, and administrative procedures.

No violations or deviations were identified in this area.

4. Monthly Maintenance Observations

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

83-982	Normal Station Service Transformer
83-988	"A" Reactor Feedwater Pump Minimum Flow Valve

Included with the above were checks for availability of redundant equipment, adequate safety isolation and clearance, work was accomplished by qualified personnel in accordance with approved procedures and Technical Specification requirements, verification that QC checks were performed as required, cleanliness controls and health physics coverage were adequate, and post-maintenance surveillance testing was performed to prove operability of the affected component and/or system.

The SRI reviewed the following maintenance procedures revisions:

7.2.28.1	Revision 0	HPCI Mechanical-Hydraulic Overspeed Trip Inspection and Replacement
7.2.50	Revision 2	Limitorque SMB Valve Operators Removal, Overhaul, and Replacement

These reviews and observations were conducted to verify that facility operations were in conformance with the requirements established in the Technical Specification, 10 CFR, and administrative procedures.

No violations or deviations were identified in this area.

5. Plant Trips - Safety System Challenges

An automatic scram was initiated on December 23, 1983, at 4:10 p.m., (Scram Report 83-06). The reactor was at 87% of rated power and normal operating conditions prior to the scram.

The non-vital station service transformer experienced an explosion followed by a fire which resulted in an electrical system protective relay tripping of the main generator output breakers. Initiation of a main turbine governor valve fast closure signal resulted which, in turn, actuated a turbine control valves fast closure reactor scram. The resultant transient of the reactor system was minimal, e.g. no safeguards equipments were automatically actuated, safety systems were not challenged, and safety relief valves were not actuated. The plant was started and returned to power on December 25, 1983.

The station service transformer explosion was immediately followed by a fire consisting of burning transformer oil. The fire was confined to the affected transformer area only and was extinguished by the onsite fire party. A normal reflash watch was established and maintained following extinguishing of the fire. The affected transformer will be inspected by the vendor in order to determine the cause of the explosion.

The SRI reviewed control room records and conducted interviews with affected operations group personnel concerning the turbine and reactor automatic shutdown. The SRI determined that no unreviewed safety questions were identified. The plant responded as designed, and immediate and followup actions performed by operations personnel were appropriate.

The SRI also conducted interviews with site personnel involved in fighting the transformer fire. Personnel included fire fighting personnel from the site operations, maintenance, and security groups. The SRI determined that the location and severity of the fire were diagnosed within a reasonable time period, the fire party assembled near the fire area in a timely manner, and that fire fighting techniques and equipment were appropriate.

The SRI reviewed Station Operations Review Committee (SORC) meetings minutes 262, 264, and 265, dated December 23, 24, and 27, 1983, respectively. The purpose of the review was to ensure the licensee thoroughly reviewed the reactor scram and transformer explosion incidents, detailed inspections for possible damage of the equipment were performed, adequate isolation of the affected transformer and associated protection devices was completed, surveillance testing was performed to ensure satisfactory and safe performance of remaining station service power sources, and that all reviews, inspections, and surveillances indicated that plant startup could be authorized.

The SRI held a discussion with licensee site management on January 14, 1984, concerning the SRI's inspection findings, interviews with affected personnel, and SORC minutes review. Also, the SRI presented comments to management which he obtained during the conduct of personnel interviews with affected site personnel.

No violations or deviations were identified in this area.

6. Followup of Previously Identified Items

- a. Open Item 8110-01 (Closed). Procedures for Manual Actuation of Safety Relief Valves

TMI Action Item II.K.3.16, "Reduction of Challenges and Failures of Relief Valves," required the licensee to revise plant procedures as necessary to incorporate steps to provide guidance for manual actuation of safety relief valves. This open item will be reviewed for completion in accordance with the requirements of TMI Action Item I.C.1, Section 2.B and is, therefore, not required to be carried as an open item.

- b. Open Item 8110-02 (Closed). Procedures for Manual Actuation of the Automatic Depressurization System Relief Valves.

TMI Action Item II.K.3.18, "Modification of Automatic Depressurization System Logic," required the licensee to revise plant procedures as necessary to incorporate steps to provide guidance for manual actuation of automatic depressurization system relief

valves. This open item will be reviewed for completion in accordance with the requirements of TMI Action Item I.C.1, Section 3.B and is, therefore, not required to be carried as an open item.

c. Unresolved Item 8312-01 (Closed). Use of "Red Arrows."

The SRI documented in NRC Inspection Report 50-298/83-12, that CNS Procedure 1.4, Revision 48, titled, "Station Rules of Practice," Section 1.4.11.6, did not include a statement concerning the use of red arrows to denote a faulty or nuisance annunciator. The licensee subsequently approved and implemented Revision 49 to Procedure 1.4 on November 28, 1983. The revision added the following sentences: "Additionally, annunciators and other indicators which may be out of service or require particular attention may be indicated by a red arrow." Nuisance alarms may also be marked with a red arrow as outlined in Alarm Procedure 2.3.1, "General Alarm Procedure." Paragraph V.B.4 of Alarm Procedure 2.3.1, Revision 6, reads, "A SRO must give his approval before any annunciator card may be removed. He must also inform the Shift Supervisor and indicate with a red arrow when any annunciator cards are removed. For all shift changes, all cards will be reinstalled and all annunciator panels tested as part of shift turnover. Inoperable annunciators, if any, will then be logged in the Control Room Log Turnover Sheet."

7. Station Operations Review Committee

The SRI attended and observed the conduct of a CNS SORC meeting held on December 8, 1983. The subject of the meeting was the identification and isolation of a 125 VDC ground. The SORC committee was presented the methodology by which the 125 VDC ground was to be located. Also included in the discussions were possible risks to continued turbine operation and the momentary loss of local turbine trip functions during the trouble-shooting process. Compensatory measures were recommended to be performed concerning local manual tripping of the main turbine should it become necessary during the time period with local turbine trip functions were inoperable.

The SRI verified that the provisions of CNS Technical Specifications, Section 6.2.1.A, applicable to SORC membership attendance and qualification requirements, review process, frequency and conduct were satisfied. Subsequent to the December 8, 1983, SORC meeting, the SRI confirmed that the SORC meeting minutes reflected the discussions, decisions, recommendations, and followup actions performed during that meeting.

No violations or deviations were identified.

8. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, violations, or deviations. Unresolved items are discussed in paragraph 6.

9. Exit Meetings

Exit meetings were conducted at the conclusion of each portion of the inspection. The division manager of nuclear operations was informed of the above findings.