

APPENDIX B

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-298/88-18

Operating License: DPR-46

Docket: 50-298

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

Facility Name: Cooper Nuclear Station (CNS)

Inspection At: CNS, Brownville, Nebraska

Inspection Conducted: June 27 through July 1, 1988

Inspectors:

H. F. Bundy Jr.
H. F. Bundy, Reactor Inspector, Test Programs
Section, Division of Reactor Safety

7/14/88

Date

G. A. Pick Jr.
G. A. Pick, Reactor Inspector, Operational
Programs Section, Division of Reactor Safety

7/14/88

Date

Approved:

W. C. Seidle
W. C. Seidle, Chief, Test Programs Section
Division of Reactor Safety

7/14/88

Date

Inspection Summary

Inspection Conducted June 27 through July 1, 1988 (Report 50-298/88-18)

Areas Inspected: Routine, unannounced inspection of the licensee's startup testing.

Results: The licensee's startup testing following the Cycle 11 refueling outage appeared to generally be in conformance with NRC requirements and licensee procedures. One deviation involved failure to include a prerequisite for performance of a test by appropriately trained personnel, paragraph 2. No violations were identified.

DETAILS1. Persons ContactedNPPD

*G. Horn, Division Manager, Nuclear Operating
*J. Meacham, Senior Manager, Technical Support
*R. Brungart, Operations Manager
*P. Ballinger, Operations Engineering Supervisor
*R. Gibson, Acting Quality Assurance (QA) Manager
*G. Smith, Licensing Supervisor
*L. Bray, Regulatory Compliance Specialist
J. Scheuerman, Lead Reactor Engineer

NRC

*W. B. Bennett, Senior Resident Inspector

*Denotes those attending the exit interview on July 1, 1988.

2. Startup Testing - Refueling (72700)

The purpose of this inspection was to verify that startup testing following the Cycle 11 refueling outage (beginning of Cycle 12) was in accordance with NRC requirements and licensee procedures. In conjunction with this, it was verified that results met acceptance criteria, and deficiencies were resolved in a timely manner. Pursuant to these objectives, the NRC inspectors reviewed the following completed licensee startup procedure and witnessed selected control room activities up to 96 percent of rated thermal power (RTP):

General Operating Procedure 2.1.1, Revision 52, "Cold Startup Procedure"

The above procedure sequenced the startup activities and assured timely data collection and analysis to verify subsequent reactor operation within predicted core physics parameters. In addition to specific reactor physics tests discussed in detail below, the NRC inspectors reviewed data for the following measurements/tests:

- Nuclear Performance Procedure (NPP) 10.9, Revision 14, "Control Rod Scram Time Evaluation"
- Surveillance Procedure 6.4.1.3, Revision 7, "CRD Coupling and Integrity Check"

In attempting to ascertain the qualifications of the test personnel who evaluated, reported, and approved NPP 10.9 above, the NRC inspector was

informed that no specific criteria existed for determining and certifying the qualification status of test personnel. Also, NPP 10.9 did not have a prerequisite for performance of the test by appropriately trained personnel as committed to by Section 2.11, "Test Control," of the CNS Quality Assurance Program for Operation Policy Document, Revision 4. This document had been submitted to and approved by NRC, Region IV. This appears to be a deviation from a licensee commitment. (298/6818-01)

a. Calibration of Nuclear Instrumentation Systems and Core Thermal Power Evaluation (61705/61706)

The purpose of this part of the inspection was to verify the following:

- The local power range monitor (LPRM) system had been properly calibrated to the local neutron flux.
- The average power range monitor (APRM) system had been properly calibrated to the core thermal power.
- The calculations of core thermal power were performed correctly.
- The Intermediate Range Monitors (IRMs) had been properly calibrated.

Pursuant to these objectives, the NRC inspectors reviewed the following procedures and associated data:

- NPP 10.5, Revision 19, "LPRM Calibration"
- NPP 10.1, Revision 18, "APRM Calibration"
- NPP 10.2, Revision 13, "IRM Power Calibration"

The above calibrations and associated thermal power evaluations were completed at the required intervals and deficiencies were appropriately resolved. However, the following discrepancies were discovered in NPP 10.2 data completed on June 11, 1988:

- The OD-3 edit (computer report) was not attached as required by Step 8.2.4.3, which was initialed as complete.
- Work Item 88-3077 was noted in Step 8.2.7 as being initiated to adjust the gain on IRC "C." This was neither noted in the discrepancy section, nor was it signed off on the procedure approval sheet as being reviewed by the shift supervisor, as required.

The above minor documentation discrepancies did not have safety impact and appeared to be isolated errors. The licensee has committed to performing remedial training in documenting test results to avoid possible safety significant errors.

No violations or deviations were identified.

b. Surveillance of Core Power Distribution Limits (61702)

This part of the inspection was conducted to verify that the plant was being operated within the licensed power distribution limits. Pursuant to this objective, the NRC inspectors reviewed the following procedures and data:

NPP 10.7, "Core Thermal Limits"
NPP 10.13, "Control Rod Sequence and Movement Control"
P-1, "Periodic NSS Core Performance Log"
OD-1, "Whole Core LPRM Calibration and Base Distributions"
OD-10, "Gain Adjustment Factor Array"

The above data were well within the predicted values/core thermal power limits. The data reviewed were at the 50 percent power plateau. The data were reviewed to: determine that alarms, error messages or other inprocess messages were resolved; verify that the transversing incore probe (TIP) data had been obtained after normalizing the detectors and that all data had been accepted by the computer; and verify that each time the computer had recovered from an outage, OD-15, "Computer Shutdown and Outage Recovery Monitor," had been implemented.

Through discussions with the reactor engineering staff, the NRC inspectors determined that the staff was knowledgeable about the computer codes' limits and capabilities.

No violations or deviations were identified.

c. Determination of Reactor Shutdown Margin (61707)

The NRC inspector reviewed this area to determine that the licensee is ensuring adequate shutdown margins throughout the operating cycle. The NRC inspector reviewed the following documents:

- Cycle Management Report for Cooper Station, Cycle 12, dated February 26, 1988
- NPP 10.16, "Shutdown Margin Evaluation"
- NPP 10.8, "Reactivity Follow Check"

The NRC inspector verified that the shutdown margin procedure was technically adequate and that the determination of the beginning of

cycle shutdown margin agreed with the Technical Specifications limit. The licensee had reviewed the data and had utilized the recommendations of the fuel vendor in conducting the control rod withdrawal movements. Discussions with the reactor engineering staff indicated that the licensee had reviewed the data supplied by the fuel vendor. The procedure utilized to periodically check the amount of shutdown margin available during power operations was technically adequate.

During review of completed NPP 10.16, "Shutdown Margin Evaluation," dated June 17, 1988, the NRC inspector questioned the licensee on the technical adequacy of the procedure. Subsequently, the licensee explained why the identified differences existed between the procedure and the Cycle 12 management report. The licensee indicated that it would take measures to clarify a few administrative items which made the procedure difficult to understand. The licensee also indicated that it would require the fuel vendor to submit, in the future, a cycle management report which would be formatted to agree with CNS procedures. This is an open item (298/8818-02) pending completion of corrective actions by the licensee and verification by the NRC, that the licensee has taken appropriate followup action on this matter.

No violations or deviations were identified.

3. Exit Interview

The NRC inspectors met with licensee representatives denoted in paragraph 1 on July 1, 1988, and summarized the scope and findings of this inspection. The licensee did not identify as proprietary any of the information provided to, or reviewed by, the inspectors.