

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
REGION IV

Report No. 50-298/81-10

Docket No. 50-298

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

Facility Name: Cooper Nuclear Station

Inspection At: Cooper Nuclear Station, Nemaha County, Nebraska

Inspection conducted: May 3 - May 31, 1981

Resident
Inspector:

LA Yandell for
D. L. DuBois, Resident Reactor Inspector
Projects Section 1

June 15 '81
Date

Regional
Personnel:

LA Yandell for
G. L. Constable, Resident Reactor Inspector
Projects Section 1

June 15 '81
Date

LA Yandell
L. A. Yandell, Reactor Inspector
Projects Section 2

June 15 '81
Date

for
T. F. Westerman, Chief
Projects Section 1

6/15/81
Date

Approved by:

for
T. F. Westerman, Chief
Projects Section 1

6/15/81
Date

Inspection SummaryInspection on May 3 - May 31, 1981 (Report No. 50-298/81-10)

Areas Inspected: Routine, announced inspection of operational safety verification; monthly surveillance and maintenance observations; reactor refueling; special refueling outage surveillance tests and maintenance activities; clarification of TMI action plan inspection requirements; follow-up of LER's, noncompliances, Bulletins, Circulars and Immediate Action Letters. This inspection involved 167 inspector hours on-site by four NRC inspectors.

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

DETAILS1. Persons Contacted

*L. Lessor, Plant Superintendent
P. Borer, Operations Supervisor
R. Noyes, Engineering Supervisor
B. Brungardt, Surveillance Planner
D. Majeres, Maintenance Planner
B. Gilbert, Training Coordinator
W. Rushton, NPPD Project Engineer
B. Fitzsimmons, Mechanical Supervisor
D. Norvell, Electrical Foremen
H. Jantzen, I&C Supervisor

*Indicates presence at exit meetings.

2. Follow-up on Previously Identified Items

(Closed) Unresolved Item 7517-01 (Inspection Report 75-17, paragraph 3):
Discrepancies between Containment Leak Rate Test and Appendix J.

The revised ILRT procedure has been reviewed and verified to be in conformance with the requirements of Appendix J.

(Closed) Unresolved Item 8006-02 (Inspection Report 80-06, paragraph 7):
Plant procedures not maintained in accordance with Attachment 4.1 to Procedure QAI-7.

Revision 12 to QAI-7 has incorporated the requirement for retention of procedure change cover sheets.

(Closed) Open Item 8009-03 (Inspection Report 80-09, paragraph 7A):
Add requirement to Procedure 7.1.1 to have the Maintenance Supervisor review the overdue PM Listing.

The licensee has reviewed their system for handling overdue PM's and considers the system adequate as it stands. CNS chooses not to modify Procedure 7.1.1 as it pertains to this matter.

(Closed) Open Item 8012-02 (Inspection Report 80-12, paragraph 5):
Policy statement to meet ANSI 18.1.

The licensee is committed to ANSI 18.1 as called out in Technical Specification 6.1.4. CNS discusses ANSI 18.1 in the Operating QA Manual (Sec. 8.14) and does not consider any supplementary procedures necessary to meet the requirements of this standard. The inspector concurred with the licensee's position and has no further questions in this area.

(Closed) Open Item 8013-02 (Inspection Report 80-13, paragraph 3A):
Review requalification lesson plans and compare to weak areas identified on requalification examination.

The licensee has identified weak areas on the requalification examination and factored these into the training program for 1981. The inspector reviewed the evaluation of the requalification examination that identified weak areas and the 1981 training program to determine that these weak areas were being covered and emphasized.

(Closed) Open Item 8013-03 (Inspection Report 80-13, paragraph 3B):
Detailed documentation of licensed operators review of station abnormal and emergency procedures.

The licensee has incorporated this review into the On the Job Training (OJT) so that each operator will review (and walk through) all emergency and abnormal procedures annually and document this review in the OJT records.

(Closed) Open Item 8013-06 (Inspection Report 80-13, paragraph 3C):
Documentation of the Shift Supervisor's evaluation of operator performance during plant evolutions (real and simulated).

The licensee has instituted a revised evaluation form for use in evaluating operator performance during plant evolutions. The inspector reviewed a sampling of the completed forms and verified (1) that the form was filled out completely, (2) that the personnel involved were identified, and (3) that the evaluation was done on each individual.

(Closed) Noncompliance 8017-01 (Inspection Report 80-17, paragraphs 3, 4):
Failure to comply with ANSI 18.7 - 1972.

The licensee has revised Procedure 1.7.1, Work Item Tracking - Corrective Maintenance, (Revision 1, dated March 16, 1981) to clearly identify responsibility for evaluating failures, examining repetitive failures, determining the cause of failure and evaluating the affect of a failure on similar equipment in the plant.

(Closed) Open item 8101-01 (Inspection Report 81-01, paragraph 2):
Use of shop guides in the administrative procedures.

The licensee considers the guidance given in Section IV of Procedure 1.7.1, Work Item Tracking - Corrective Maintenance, sufficient to ensure that when necessary, approved procedures will be used in lieu of shop guides. After discussions with licensee personnel, the inspector concurred with this position.

(Closed) Unresolved Item 8101-02 (Inspection Report 81-01, paragraph 5):
Revise Procedure 7.2.22 to reflect change of main steam relief valves
(MDC 80-09).

Revision 5 to Procedure 7.2.22 dated May 15, 1981, has been issued to
reflect this design change of the main steam relief valves.

(Closed) Open Item 8102-02 (Inspection Report 81-02, paragraph 3):
SORC Chairman to establish punch list for tracking SORC meeting
open items.

The licensee has established the punch list for SORC meeting open items.

3. Operational Safety Verification

The inspectors observed control room operations, instrumentation, controls, and reviewed applicable logs and conducted discussions with control room operators. The inspectors verified operability of RHR Shutdown Cooling System, Diesel Generators #1 and #2, and reviewed tagout records and verified proper return to service of affected components. They also verified that maintenance requests had been initiated for equipment discovered to be in need of maintenance, that the appropriate priority was assigned and that maintenance was performed in a timely manner commensurate with the priority assigned.

Tours of accessible areas of the facility were conducted to observe plant and equipment conditions including cleanliness, radiological controls, fire suppression systems, emergency equipment, potential fire hazards, fluid leaks, excessive vibration and instrumentation adequacy.

These reviews and observations were conducted to verify that facility operations were in conformance with the requirements established in the Technical Specifications, 10 CFR and Administrative Procedures.

No violations or deviations were identified in these areas.

4. Monthly Surveillance Observation

The inspectors observed portions of Technical Specification required surveillance testing to verify that testing was performed in accordance with adequate procedures, that test instrumentation was in calibration, that Limiting Condition for Operations (LCO) were met, that removal and restoration of the affected components was accomplished, that test results conformed with Technical Specifications and procedure requirements, and were reviewed by personnel other than the person directing the test, and that any deficiencies identified during testing were properly reviewed and resolved by appropriate management personnel.

The following tests were selected and observed in part:

- 6.1.1 SRM Functional Test (Reactor not in RUN)
- 6.1.2 IRM Functional Test (Reactor not in RUN)
- 6.2.2.3.2 HPCI Auto ISO Logic - Steam Line Space Temperature Functional Test

These reviews and observations were conducted to verify that facility operations were in conformance with the requirements established in the Technical Specifications, 10 CFR and Administrative Procedures.

No violations or deviations were identified in these areas.

5. Refueling Activities

The inspector reviewed the refueling activities being performed during this period as well as the documentation associated with preparation and verification required for refueling operations. The inspector verified that (1) surveillance testing required by Technical Specifications had been performed prior to fuel handling, (2) periodic testing of refueling related equipment was being performed, (3) required parameters were being monitored in accordance with Technical Specifications, (4) containment integrity was being maintained as required by Technical Specifications, and (5) staffing for refueling operations was in accordance with Technical Specifications.

As a part of the review, the inspector reviewed the following licensee procedures:

Procedure 3.1, "Special Nuclear Materials Control and Accountability Instructions," Revision 2, dated March 6, 1980. (This included the completed Fuel Movement Data Sheets - Attachment A, that were available in the control room and the refueling area.)

Procedure 3.5, "Refueling," Revision 16, dated June 10, 1980.

Procedure 6.1.27, "Refueling Platform Interlocks and System Functional Tests," Revision 15, dated June 20, 1980.

Procedure 6.2.4.1, "Daily Surveillance (Tech. Specs.)," Revision 39, dated September 6, 1980.

Procedure 5.3.5, "Refueling Floor High Radiation," Revision 2, dated March 15, 1978.

The inspector was able to observe refueling operations from the refueling bridge in containment and at the control station in the Control Room. The inspector observed that (1) the fuel accountability status boards were

being maintained current, (2) precautions were being taken to prevent foreign objects from falling into the reactor vessel, (3) radiological precautions were being observed, (4) communications were maintained between the refueling bridge/refueling area and the Control Room, and (5) the reactor mode selector switch was in the position required by the Technical Specifications.

No violations or deviations were identified.

6. Refueling Outage Surveillance Activities

The inspectors reviewed a sampling of surveillance activities conducted during the refueling outage to verify that the tests were conducted using approved procedures, required test equipment was in calibration, qualified personnel performed the tests and that data was recorded as required.

The following tests were reviewed:

- 2.1.14 Reactor Vessel Inservice Leak Test
- 6.1.27 Refueling Platform Interlocks and Systems Functional Test
- 6.1.31 RPS - Primary Containment High/Low Pressure Alarm Calibration and Functional Test
- 6.2.1.5.2 PCIS - Logic Initiation - Primary, Secondary Functional Test and SGT Auto Initiation
- 6.2.2.3.2 HPCI Auto Iso Logic Steam Line Space Temperature Functional Test (Test also observed)
- 6.2.2.3.14 HPCI - Logic Turbine Trip Functional Test
- 6.3.15.2 Station Battery Rated Load Test (battery 250 - A only).

The inspector reviewed the surveillance testing requirements for the 1981 Spring Outage as identified in NPPD memo of March 9, 1981 and the program for tracking completion of these tests.

No violations or deviations were identified in these areas.

7. Refueling Outage Maintenance Activities

The inspectors observed portions of the following selected maintenance activities in progress including Torus design change modifications:

MWR #80-0660 RPS Scram Pilot Trip Logic Pressure Switch installation. (work was being performed under MDC #81-005).

MWR #80-0853 HCU charging water ball check valve.

MDC #80-097 Torus saddle modification

MDC #80-098 PC, Torus Internals

Included with the above were checks for adequate safety isolation and tag-out verification that work was accomplished in accordance with

approved procedures, that QC checks were being performed as required, cleanliness controls were utilized, and health physics coverage was adequate.

Also, the following completed Maintenance Work Requests (MWR) were reviewed (pending final acceptance testing):

- 81-0685 Repair leaking RHR Hx 1B steam supply valves
RHR-AOV-PCV69B and 70B
- 81-0861 Investigate failure of drain valve between RWCU-10 and
RWCU-15 to open
- 81-0852 Repair leaking scram discharge volume vent valve
CRD-AOV-CV32A
- 81-0851 372 Disassembled and inspected containment spray valve
RHR-MOV-026B for binding
- 81-0851 Replace ball valves associated with TIP A & B valve assemblies.

No violations or deviations were identified in these areas.

8. NUREG-0737, Clarification of TMI Action Plan Inspection Requirements

TMI Action Item I.I.K.3 16, Reduction of Challenges and Failures of Relief Valves

- a. The inspector verified licensee actions with regard to this item based on NPPD letters to NRR dated December 30, 1980, and April 13, 1981.

The licensee committed actions included replacement of main steam relief valves and the revision of plant procedures to provide for manual actuations of relief valves in accordance with BWR Emergency Procedure guidelines.

In accordance with Minor Design Change MDC 80-9 "Replacement of Main Steam Relief Valves," the licensee installed two stage main steam relief valves in place of the previous three stage relief valves to improve reliability and to reduce unnecessary transients.

The NRC inspector verified that:

- The change was approved by the SORC as required by Technical Specifications.

- MDC 80-9 was issued in accordance with Station Administrative Procedure 1.13.
- An appropriate acceptance test was performed.
- Maintenance Procedure 7.2.22.1 was revised for removal and installation of Main Steam Relief/Safety valve.
- Set point data was received from the Supplier.

The revision of the plant procedures to provide manual actuation is pending the approval and implementation of the BWR Emergency Procedures. In accordance with TMI Action Item I.C.1, this is not required until the first refueling after January 1, 1982. This item will be carried as an open item. (8110-01)

- b. TMI Action Item II.K.3.18, Modification of Auto Depressurization System Logic.

The inspector verified licensee actions with regard to this item based on NPPD letters to NRR dated December 30, 1980 and April 15, 1981.

The licensee's conclusion based on the BWR Owners Group's submittal of March 31, 1981 is that the present system is adequate. The licensee did commit to provide procedures for the operator to depressurize the vessel based on the BWR Emergency Procedure Guidelines.

Procedures in accordance with TMI Action Item I.C.1 are not required until the first refueling after January 1, 1982. This item will be carried as an open item. (8110-02)

- c. TMI Action Item II.K.3.21 Restart of Core Spray and HPCI Systems.

The licensee's (NPPD) December 30, 1980 letter to NRR states that based on the BWR Owners Group's submittal of December 29, 1980, the present system is adequate.

- d. TMI Action Item I.A.1.1(3) Shift Technical Advisor-Training

The licensee described their program for staffing and training the STA position at Cooper Nuclear Station in their December 30, 1980 letter to D. G. Eisenhower, NRR. The licensee reported in that letter that using engineers to fulfill the STA function actually degraded long-term plant safety because staff engineers viewed the STA position as nonchallenging and permanent shift work as unacceptable. This view led several staff engineers to seek employment elsewhere and left

their five newly authorized engineering/STA positions unfilled for a year. Based on this, the licensee described their plans for upgrading the training of current shift supervisors, formalized their long standing practice of having a Control Room Supervisor (SRO) on shift and documented their on-call requirements to make technical people available if needed. The inspector reviewed the licensee's current activities against the commitments and found that they were staffed in accordance with their December 30, 1980 letter.

The inspector reviewed the training records of the Shift Supervisors who were fulfilling the STA function. This training is limited to the simulator portion of the training described in INPO's "Nuclear Power Plant Shift Technical Advisor," Revision C dated April 30, 1980. Since detailed training requirements have not been formally established for this combined function, this issue is being forwarded for further review by NRC Headquarters. (Open Item 8110-03)

e. TMI Action Item II.B.4 Training for Mitigating Core Damage

The licensee presently conducts training for mitigating core damage as an integral part of licensed operator training. In addition, arrangements are being made through General Electric for a 3-day course intended to meet NUREG-0737 guidelines. The course is scheduled for July 15-17, 1981. A description of the course is not available yet. The licensee plans to send two licensed SRO's to this course. Those SRO's will then train the other licensee personnel. This initial program should be completed by October 1, 1981. The details of this program will be reviewed during the routine IE inspection of the requalification program.

f. TMI Action Item I.A.2.1(4) Immediate Upgrading of RO and SRO Training and Qualifications - Modify Training

The licensee submitted their plans for training and requalification of RO's and SRO's to P. F. Collins, OLB in a letter dated October 1, 1980. The inspector reviewed the additional training given to RO's and SRO's by discussing with the operators the actual training they have received during the past year. The review of training records indicated that seven additional hours had been devoted to training of heat transfer, fluid flow and thermodynamics. When asked about the level of training it was described by the operators as being below the level of training they had received on the same subjects while in the Navy. These discussions caused the inspector to question whether the improvements to training are being conducted at the proper level. This issue is being forwarded to NRC headquarters for additional review. (Open Item 8110-04)

9. Order for Modification of BWR Scram Discharge System dated January 9, 1981

The inspector reviewed Minor Design Change MDC 81-005 (April 7, 1981) relating to the January 9, 1981 NRC Order for compliance to the following parts of that order:

"(a) The system shall automatically initiate control rod insertion at 10 psi or greater above scram outlet valve opening pressure."

Two pressure switches automatically scram the reactor at 55 psig.

"(b) The system shall not degrade existing safety systems (e.g., reactor protection system)."

The system interconnects in parallel with the Backup Scram Solenoids. Credit is not taken for operation of the Backup Scram Valves.

"(c) The system shall allow for scram reset."

System reset is provided by two momentarily reset buttons.

"(d) The design shall consider the potential for inadvertent or unnecessary scram."

One 2 second time delay on each pressure switch are installed to minimize the effect of momentary air pressure changes.

"(e) Any required power supply should not be subject to any failure mode which could also initiate the degraded-air conditions, unless it can be demonstrated that an automatic scram will occur promptly because of the failure mode of the power supply."

The system is powered by 125VDC source common to the Backup Scram Valve. Loss of power does not affect air system.

"(f) The system is not subject to the requirements of Appendices A and B of 10 CFR 50."

This separate modification is installed in parallel with the normal 125 VDC to the Backup Scram Solenoids. Failure modes of the modification would affect operation of the Backup Scram Valves, however credit is not taken for the operation of the Backup Scram Valves.

"(g) There shall be a documented independent design review of the system."

An independent safety analysis was performed as a part of MDC 81-005.

"(h) Before the system is declared operable, a documented preoperational test of the system will be successfully completed."

The preoperational test has been completed in accordance with Section X of MDC 81-005.

"(i) The system shall be functionally tested at each unit shutdown but need not be tested more than once each 90 days.

CNS has implemented procedures to test the system at each unit shutdown, but not more than once each 90 days.

"(j) System should be operable in all modes other than shutdown and refueling or the unit shall be in cold shutdown within 72 hours unless system operability is restored.

CNS is preparing procedure changes to identify this requirement. This will remain an open item until these procedures are issued (8110-05).

10. Follow-up of IE Bulletins and IE Circulars

a. IE Bulletins

79-02 (Closed) Pipe Support Base Plate Designs Using Concrete Expansion Anchor Bolts

CNS letter of June 3, 1980, identified those hangers requiring additional work as a result of Revision 2 to the bulletin specifying a factor of safety greater than 5 (including SSE). This final portion of work has been completed and documented in CNS letter of March 25, 1981. The licensee's actions in response to this bulletin appear adequate.

79-14 (Closed) Seismic Analyses For As-Built Safety-Related Piping Systems

The licensee's response to items 1 and 2 of the bulletin are documented in CNS letter of September 4, 1979. The remaining inspections and evaluations to be done for item 3 have been completed, and this work is documented in CNS letter of March 25, 1981. The licensee's actions in response to this bulletin appear adequate.

80-17 (Closed) Failure of 76 of 185 Control Rods to Fully Insert During A Scram At A BWR

CNS has completed the installation and testing of the Continuous Monitoring System. The inspector followed up on items 4 and 5 of Supplement 4 to the bulletin to verify that they were performed

and documented. Other action items of this bulletin had been previously verified and documented in Inspection Report 50-298/81-03 dated April 28, 1981. The licensee's actions in response to this bulletin appear adequate.

80-21 (Closed) Valve Yokes Supplied by Malcolm Foundry Company, Inc.

The licensee has none of the valve yokes in question installed in safety-related systems. CNS letter of May 7, 1981 documented these findings with the NRC.

81-02 (Closed) Failure of Gate Valves to Close Against Differential Pressure

The licensee has none of the gate valves in question installed in safety-related systems. CNS letter of April 27, 1981, documented these findings with the NRC.

The inspector reviewed the licensee's actions on other outstanding bulletins and determined their status to be as follows:

80-25 (Open) Operating Problems with Target Rock Safety Relief Valves at BWRs.

These valves were serviced during the 1981 outage, and the valve solenoids were inspected and tested as required by the bulletin. The report on these inspections and tests has been received from Target Rock and indicates that all solenoids functioned properly. CNS is presently reviewing this information in preparation for submitting a report of these findings to the NRC to close out item 1 of the bulletin.

The relief valves on the pneumatic supply system to the Target Rock valves have been reset to 130 psig as discussed in CNS letter of February 13, 1981 to satisfy the requirements of item 3 of the bulletin.

81-01 (Open) Surveillance of Mechanical Snubbers

The licensee is performing the inspections required by the bulletin as part of Special Procedure 81-05, and anticipates submitting report results of this inspection within 60 days of the completion of the 1981 outage.

81-03 (Open) Flow Blockage of Cooling Water to Safety System Components by Corbicula Sp. (Asiatic Clam) and Mytilus Sp. (Mussel)

A report in response to the five action items of the bulletin is being prepared by the engineering staff in Columbus.

b. IE Circulars

80-16 (Closed) Operational Deficiencies in Rosemount Model 510DU Trip Units and Model 1152 Pressure Transmitters.
None of these devices are installed at CNS.

81-01 (Closed) Design Problems Involving Indicating Pushbutton Switches Manufactured by Honeywell, Inc.
None of these devices are installed at CNS.

81-02 (Closed) Performance of NRC - Licensed Individuals While on Duty.

This matter was discussed by plant management with the plant staff and administrative procedures were reviewed to ensure that performance requirements and prohibited activities for licensed personnel are clearly identified.

81-03 (Closed) Inoperable Seismic Monitoring Instrumentation.

The licensee has contracted with Kinometrics of Pasadena, California, to perform surveillance on the CNS seismic instrumentation.

81-05 (Closed) Self-Aligning Rod End Bushings for Pipe Supports

The problem of loose bushings has been addressed by the licensee and the snubber examination procedure has been modified to inspect for this particular situation.

11. Follow-up on LERs

The following LERs are closed on the basis of the inspector's in-office review, a review of licensee documentation, and discussions with licensee personnel:

LER 80-12
LER 80-13
LER 80-21
LER 80-33
LER 80-49

LER 80-50
LER 80-51
LER 80-52
LER 81-01

LER 80-14 (Open) identified a service water pump that vibrated excessively and caused the licensee to change out the rotating assembly. The suspect rotating assembly was sent back to Byron-Jackson (BJ) for inspection and evaluation. The inspector determined that BJ has completed the inspection and identified excessive wear which caused the vibration. The licensee will be evaluating this report when received, and submit an updated LER to cover this additional information. This will remain an open LER until the updated LER is submitted and reviewed.

LER 80-47 (Open) identified a motor operated valve that failed to operate during surveillance testing. The motor pinion gear key had failed and this was repaired. In addition, it was determined that incorrect key material had caused the failure and Limatorque has identified thirteen other plant valves that are susceptible to the same failure. The inspector determined that proper gear keys provided by Limatorque are on-site, and the licensee is changing these out during this current outage under WI 81-0211. This will remain an open LER until the change out is completed and the work item signed off.

12. Exit Meetings

Exit meetings were conducted at the conclusion of each portion of this inspection. The Plant Superintendent was informed of the above findings.