

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

Report No. 50-298/79-10

Docket No. 50-298

License No. DPR-46

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 1-4 and 14-15, 1979

Principal Inspector: E. H. Johnson 6/1/79
Date

T. F. Westerman for 6/4/79
E. A. Cupp, Reactor Inspector (May 14-15, 1979 only) Date

Approved by: T. F. Westerman 6/4/79
T. F. Westerman, Chief, Reactor Projects Section Date

Inspection Summary

Inspection on May 1-4 and 14-15, 1979 (Report No. 50-298/79-10)

Areas Inspected: Routine, unannounced inspection of the licensee's actions on IEB 79-08 "Events Relevant to Boiling Water Power Reactors Identified During Three Mile Island Incident." The inspection involved sixty-one (61) inspector-hours on site by two (2) NRC inspectors.

Results: One item on noncompliance (Infraction - failure to perform to safety related maintenance activity using the latest approved revision of the appropriate procedure - Details, paragraph 11) was identified.

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DETAILSPersons Contacted

L. F. Bednar, Electrical Engineer
 P. J. Borer, Assistant to the Station Superintendent
 R. Brungardt, Shift Supervisor
 P. F. Doan, Mechanical Engineer
 W. F. Gilbert, Training Coordinator
 H. A. Jantzen, Instrument and Controls Supervisor
 L. I. Lawrence, Maintenance Supervisor
 *L. C. Lessor, Station Superintendent
 C. R. Noyes, Engineering Supervisor
 R. W. Seier, QA Supervisor
 P. V. Thomsson, Assistant to the Station Superintendent
 M. G. Williams, Operations Supervisor

*Present at the exit interview.

In addition to the above technical and supervisory personnel, the inspector held discussions with various maintenance, operations, technical support and administrative members of the licensee's staff.

1. Plant Status

During the first part of this inspection the licensee was completing preparations for a reactor startup following a four week refueling outage. During the second part of the inspection routine power operations were in progress at approximately 60 percent power.

2. Objective of the Inspection

On April 14, 1979 the NRC issued IEB Bulletin 79-08 "Events Relevant to Boiling Water Power Reactors Identified During Three Mile Island Incident" to all BWR licensee's. This bulletin directed that the licensee conduct a review of systems and procedures as well as emphasize operating instructions to operators, to ensure that the conditions and/or operating errors that contributed to the TMI incident are not present at his facility. The licensee responded to this bulletin on April 25, 1979 (NPPD ltr J. M. Pilant to NRC Region IV K. V. Seyfrit).

The purpose of this inspection was to review the licensee's response to the IEB and the perform and independent verification of the operability of the engineered safeguards features systems. The specific items inspected are detailed in paragraphs 3 thru 11 below.

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3. Review of Operators Training Relative to IEB 79-08

The purpose of this inspection effort was to review the training provided by the licensee relative to the actions required in IEB 79-08.

The description of the events of the TMI-2 incident were routed to each operator along with a memorandum of instruction written by plant management to remind the operators of their responsibilities toward safe plant operations. The contents of this memorandum were noted to be as described in the licensee's response to IEB 79-08. In addition to the above, the station superintendent held a discussion session with each operating shift to reiterate the above and confirm that each operator understood the apparent operational errors made during the TMI-2 incident and the actions that should have been taken to preclude this incident.

The inspector had no further questions regarding this area.

4. Comparison of ESF System alignments with Process Drawings

The objective of this inspection effort was to compare the system alignments called out in operating procedures for the engineered safeguards features systems (ESF) against the valve alignments shown on the licensee's as built process drawings.

The inspector performed a detailed review of the following ESF systems using the procedures and drawings indicated below:

High Pressure Coolant Injection - System Operating Procedure (S.O.P) 2.2.33; Process and Instrumentation Drawing (P&ID) 2044, 2041, 2049

Reactor Core Isolation Cooling - SOP 2.2.67, P&ID 2043, 2041, 2040

Automatic Depressurization System - SOP 2.2.1, P&ID 2027

Core Spray - SOP 2.2.9, P&ID 2045

Residual Heat Removal (Low Pressure Coolant Injection) - SOP 2.2.54 and 2.2.69, P&ID 2040

Diesel Generator Starting Air - SOP 2.2.20, P&ID 2077

Standby Liquid Control - SOP 2.2.74, P&ID 2045

Residual Heat Removal Service Water - SOP 2.2.70, P&ID 2006, 2036

Reactor Equipment Cooling - SOP 2.2.65, P&ID 2031

Diesel generator Fuel Oil - SOP 2.2.20, P&ID 2077, 2011

Standby Gas Treatment System - SOP 2.2.73, P&ID 2020, 2022, 2037

Service Water - SOP 2.2.71, P&ID 2006

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No items of noncompliance or deviations were noted in this area of the inspection.

The inspector did note the following items that were brought to the attention of the licensee for his review and correction:

- a. Section VII.C.3 of procedure 2.2.9 directs the operators actions regarding the operation of the core spray system to an automatic initiation signal. This section of the procedure should stress the use of multiple vessel level indicators.
- b. In the valve alignment checklist for procedure 2.2.71 it was noted that valve SW-125 was specified to be locked open whereas the P&ID showed this valve to be locked closed. The completed valve alignment checklist performed prior to the reactor startup had a temporary change to the procedure to check this valve locked closed. An independent valve position verification by an NRC inspector determined that this valve was locked closed. A permanent procedure change is in progress for this item.
- c. In reviewing the valve alignment procedure for the standby liquid control system, it was noted that the latest revision to the drawing (revision 4) had deleted the locked closed requirement for valve SLC-23 from the earlier revision 1. The latest operating procedure showed this valve as throttled open. Although the down stream valves SLC-25 and 26 are closed per the valve alignment checklist, these valves are not locked in the closed position to provide an equivalent level of control since SLC-23 now is not locked closed. This item was discussed with the licensee and the inspector indicated that it would remain unresolved pending analysis by the licensee (Unresolved item 7910-1).

5. Review of Surveillance Procedures and
Surveillance Test Results for ESF Systems

The objective of this inspection effort was to review in detail, the licensee's surveillance procedures for ESF systems to ensure that sufficient procedural controls existed to ensure that at the completion of the test, the system had been restored to its operable (or standby) condition. The inspector also reviewed the latest completed surveillance test for each of the procedures reviewed to ensure that the acceptance criteria for system/component operability had been met. This review constituted 100 percent of the technical specification required tests to verify system operability for each of the ESF systems reviewed.

This area of the inspection consisted of a review of 107 surveillance procedures and the latest completed test results for the ESF systems listed in paragraph 4 above.

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The inspector noted that the acceptance criteria for each completed test reviewed had been met. Several discrepancies of an editorial nature were noted in the review of the procedures. These items were communicated to a licensee representative to be included in the next revision to the procedures.

During the review of the surveillance procedures the inspector noted that many procedures contained a procedural step requiring the operator to restore the system lineup to normal or to the standby condition specified in the system operating procedure. This type of statement was present in addition to the procedural steps which restored individual valves or control switches to their proper positions (when such valves and switches were repositioned during the test). It was apparent to the inspector that such a general statement was intended as a final review by the operator of the system status. The inspector expressed his concern that his type of procedural requirement does not provide sufficient specific guidance to ensure that the operator checks the system returned to service in a uniform manner. The inspector indicated that a specific checklist for checking the systems aligned for standby, or the appropriate procedural steps added to the procedure, would accomplish this. This item will receive continued follow-up during a subsequent inspection. (Open Item 7910-3)

The inspector had no further questions in this area.

6. Equipment Tagging Procedures

The purpose of this inspection effort was to confirm that the licensee's procedures for caution and hold tags on equipment were such that tags would not be allowed to obscure indicating lights, meters or control switch positions such that operators could not readily determine plant conditions.

Based on numerous previous observations at this facility and a discussion of the tagging procedure with the operations supervisor the inspector determined that caution and hold tags are placed on control boards in such a manner that lights and switches are not obscured. In general this means that such tags are rolled up and tucked underneath the control switch on which they are attached.

The inspector had no further questions on this matter.

7. Use of HPCI/RCIC During Routine Operational Transients

The purpose of this inspection effort was to determine if the HPCI or RCIC systems are routinely used to augment normal feedwater flow during routine operational events which may induce a reactor water level transient.

In discussions with several members of the licensee's operations staff it was determined that HPCI and RCIC have automatically operated (in addition to

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required surveillance testing) only in response to an actual reactor water level low signal (-37 inches) on several occasions due to a main turbine trip or loss of feedwater/reactor trip. Those events constitute transients for which HPCI and RCIC initiations are expected. The HPCI and RCIC systems are not used as a routine augment to the feedwater system by the operators to maintain vessel level.

The inspector had no further questions on this matter.

8. Valve Alignment Verification

The objective of this inspection effort was to verify the alignment of valving for the flowpaths of the safety related positions of the ESF systems listed in paragraph 4 above. This independent verification was performed using the valve alignment checklists contained in the system operating procedures that had been previously verified against the process and instrumentation drawing (see paragraph 4 above) actual visual check of valve positions.

In addition to the independent valve alignment verification the inspector reviewed the valve alignment checklists used for the valve alignments performed at the end of the current refueling outage to determine that all discrepancies were resolved. The inspector had no questions in this area.

No items of noncompliance or deviations were noted in this area of the inspection. Several discrepancies were noted that were brought to the attention of the licensee for correction. These items are detailed below.

Standby gas treatment valve SGT 49 (Fan cross connect valve) was specified on the process and instrumentation drawing and the valve checklist to be locked open. The valve was verified to be in the open position as required but was not sealed against inadvertent operation, nor was the valve listed in the valve seals log to be sealed. The inspector informed the licensee of this fact and indicated that this item required review to determine the reason for requiring the valve to be locked in position. This item will remain unresolved pending review by the licensee (unresolved item 7910-2).

It was also noted that valve DGSA-15, diesel generator #1 starting air compressor cross tie was open whereas the valve lineup checklist of procedure 2.2.20 states that this valve is to be shut for normal operation (the valve is not however specified to be sealed). This valve is one of two series valves in the cross connect line and as the other valve was shut the system operation was not impaired. A licensee representative took immediate action and closed the valve.

9. Administrative Controls for the Return of ESF Systems to Service Following Test and Maintenance

The objective of this inspection effort was to review the licensee's administrative controls for the return of ESF systems to service following test and/or maintenance activities.

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During inspection 50-298/77-15 (Details, paragraph 12) the inspector discussed the control of valves designated on process drawings as locked. These are valves whose position is critical to the proper operation of ESF systems. The licensee responded to these concerns by revising his equipment control practices to include a valve seals log. This log contains a listing, by system, of valves that are designated as locked in position. Each of these valves is sealed by a serialized lead seal to prevent inadvertent valve operation. The removal of a seal is authorized only by the shift supervisor or by a specific step of a surveillance procedure. The removed seal is returned to the shift supervisor and recorded in the valve seals log. Reinstallation following maintenance or test is directed by the shift supervisor and the new serial number is recorded in the log.

Following all maintenance activities involving an ESF system the licensee requires that an appropriate surveillance procedure operability test be performed prior to designating that system as "restored to normal" on the maintenance work request.

Additionally the inspector reviewed the licensee's surveillance test program for all ESF systems to ensure that following the completion of the test the system had been restored to its proper operational (or standby) condition. This inspection effort is detailed in paragraph 5 above.

This inspector had no further questions on this matter.

10. Restoration of Equipment and Systems following an Extended Outage

The purpose of this inspection effort was to examine the methods used by the licensee to control the restoration of equipment and systems following an extended outage to assure that all safety related systems are made fully ready prior to plant startup or heat up. During the first part of this inspection, the licensee was in the last week of a refueling outage thus affording the inspector an opportunity to review the control methods for equipment and system restoration actually in use. The following items were noted.

A master startup checklist had been prepared for the restoration from this outage. This checklist contained a list of all systems for which valve lineup checks are to be performed; all surveillance tests that must be completed prior to, and during startup; and all plant operating procedures that are to be performed for equipment lineups. Each of the startup checklist line items was to be signed off by the shift supervisor upon completion. Final approval for plant startup is recommended by the on site review committee and approved by the station superintendent.

The individual system valve alignment checklists contains a cover sheet to list all discrepancies (material discrepancies such as missing valve tags or alignment discrepancies caused by plant maintenance) noted during the

alignment. When each of these discrepancies is corrected the entire check list is reviewed by the shift supervisor who then certifies the system as ready for startup.

The inspector had no further questions in this area.

11. Facility Tour

During both parts of the inspection a tour of the facility was conducted to note plant conditions and the status of maintenance in progress and to review system operations to determine if any abnormalities were present.

During the facility tour on May 1, 1979, the inspector noted that a check of the setpoint on a standby liquid control pump discharge relief valve was in progress by operations department personnel. The inspector questioned the operators regarding this activity and noted that maintenance procedure 7.2.35 revision 1 was being used in the performance of this check. The inspector noted from the controlled copy of the licensee's procedures that the correct revision for this procedure is revision two of March 1978.

Section 2.6 of the licensee's quality assurance manual requires that procedures (including the latest revision) be controlled and distributed to the location where the activity is performed. The failure to use the latest revision in the performance of safety related maintenance is an item of noncompliance.

12. Unresolved Items

Unresolved items are matters about which more information is required to ascertain whether they are acceptable, items of noncompliance or deviations. The following unresolved items were identified during this inspection.

7910-1 SBLC valve 23 (paragraph 4)

7910-2 SBT valve 49 (Paragraph 8)

13. Exit Interview

An exit interview was held at the conclusion of each part of the inspection with the station Superintendent. The findings indicated above were discussed.

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