UNITED STATES

December 20, 1999

J. H. Swailes, Vice President of
Nuclear Energy
Nebraska Public Power District
P.O. Box 98
Brownville, Nebraska 68321

SUBJECT: NRC INSPECTION REPORT NO. 50-298/99-14

Dear Mr. Swailes:

This refers to the inspection conducted on October 10 through November 20, 1999, at the Cooper Nuclear Station facility. The enclosed report presents the results of this inspection.

The inspectors examined activities conducted under your license as they relate to safety and to compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspectors examined a selection of procedures and representative records, observed activities, and conducted interviews with personnel.

Based on the results of this inspection, the NRC has determined that two violations of NRC requirements occurred. These violations are being treated as noncited violations (NCV), consistent with the Interim Enforcement Policy for pilot plants. These NCVs are described in the subject inspection report. If you contest these violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Cooper facility.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, if requested, will be placed in the NRC Public Document Room (PDR).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

P. H. Harrell for

Charles S. Marschall, Chief
Project Branch C

Docket No.: 50-298
License No.: DPR-46

Enclosure:
NRC Inspection Report No.
50-298/99-14

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E-mail report to D. Lange (DJL)
E-Mail report to J. D. Wilcox (JDW)
E-Mail report to Frank Talbot (FXT)
E-Mail report to NRR Event Tracking System (IPAS)
E-Mail report to Document Control Desk (DOCDESK)
E-Mail all documents to Jim Isom for Pilot Plant Program (JAI)
E-Mail all documents to Sampath Malur for Pilot Plant Program (SKM)

bcc to DCD (IE01)

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.:	50-298
License No.:	DPR 46
Report No.:	50-298/99-14
Licensee:	Nebraska Public Power District
Facility:	Cooper Nuclear Station
Location:	P.O. Box 98 Brownville, Nebraska
Dates:	October 10 through November 20, 1999
Inspectors:	J. Clark, Senior Resident Inspector M. Hay, Resident Inspector
Approved By:	Charles S. Marschall, Chief, Project Branch C Division of Reactor Projects

ATTACHMENT: Supplemental Information

SUMMARY OF FINDINGS

Cooper Nuclear Station
NRC Inspection Report 50-298/99-14 (DRP)

This report covers a 6-week period of baseline resident inspection.

The body of the report is organized under the broad categories of Reactor Safety and Other Activities as listed in the summaries below.

In order to assess these findings against fundamental cornerstones of performance, these findings were evaluated within the cornerstones listed below. Adequate or superior performance is not recognized in these reports. Findings are assessed according to their potential risk significance and are assigned colors of green, white, or yellow. Green findings are indicative of issues that, while they may not be desirable, represent little or no risk to safety. White findings indicate issues with some increased risk to safety, which may require additional inspection resources. Yellow findings are more serious issues with higher potential risk to safe performance. No individual finding is indicative of either acceptable or unsafe performance. The findings are considered in total with other inspection findings and performance indicators to determine overall plant performance.

Cornerstone: Initiating Events

Green. The inspectors concluded that worker failure to properly implement a maintenance procedure, resulting in the unplanned loss of a vital bus, was a violation.

This loss of the vital bus was characterized as having low safety significance based upon the significance determination process review for reactor safety. Deenergizing the essential bus made the equipment powered from this bus unavailable for mitigation of an accident. However, redundant equipment was continuously operable from another essential bus, and the deenergized bus automatically transferred and reenergized within approximately 2 seconds. We are treating this violation as a noncited violation, consistent with the Interim Enforcement Policy for pilot plants. Operations personnel documented this in their corrective action process as Significant Condition Report 99-0746 (Section 1R03).

Cornerstone: Mitigating Systems

Green. A licensed operator failed to properly implement a surveillance procedure, resulting in the unplanned withdrawal of a control rod and a reactivity transient.

This issue was characterized as having low safety significance based upon the significance determination process. The operator action of withdrawing the control rod, instead of inserting it, caused reactor power to exceed steady state licensed thermal power for approximately 3 minutes. Reactor engineers verified that no thermal limits were exceeded and that design basis transient analysis permits brief operation at the power level attained during this transient. The inspectors concluded that the operator failed to properly insert the control rod as specified in Procedure 6.CRD.301, AWithdrawn Control Rod Operability IST Test,@ Revision 6. We are treating this violation as a noncited violation, consistent with the Interim Enforcement Policy for pilot plants. Operations personnel documented this in their corrective action process as Repetitive Condition Report 99-0824 (Section 1R22.)

Report Details

During this inspection period, the plant operated at 100 percent power, with the exception of minor power reductions for control valve testing and control rod pattern adjustments.

1. REACTOR SAFETY
Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R03 Emergent Work

a. Inspection Scope

The inspectors reviewed the emergent work associated with dropping a core shroud bolt in the spent fuel pool and with the failure of an average power range monitor (APRM). Inspectors also reviewed the emergent work associated with repairs to Circulating Water Pump D. The inspectors interviewed operators and maintenance personnel about the emergent work.

b. Observations and Findings

The inspectors did not identify any findings associated with the spent fuel pool or APRM work.

On October 18, 1999, during troubleshooting activities on Circulating Water Pump D, a technician inappropriately installed a voltage recorder. This resulted in a blown control fuse that caused essential 4160 volt Bus 1G to transfer from its normal power supply to the emergency transformer. Section 1R14, ANonroutine Plant Evolutions,@ discusses recovery from the transfer.

Maintenance and operations personnel reviewed the event and determined the following causes:

- **$** The electrician did not receive training on the piece of test equipment and was unfamiliar with its use.

- **$** Personnel involved in the preparation, review, approval, and implementation of the troubleshooting failed to properly identify troubleshooting boundaries and plant impact as required by Procedure 7.0.1.7, ATroubleshooting Plant Equipment,@ Revision 5, requirements. Specifically, the troubleshooting data sheet identified the boundaries as ACW-P-D (Circulating Water Pump D) & CW-MOV-115MV (Circulating Water Motor-Operated Valve 115) circuits.@ During troubleshooting, the electrician determined that he could not access the Circulating Water Pump D motor leads. Instead, the electrician attempted to obtain the data from the 4160 volt Bus 1B voltmeter terminals outside the boundaries of the originally planned work.

- **$** Connecting the voltmeter to the 4160 volt Bus 1B voltmeter terminals caused the

blown fuse and the essential bus transfer.

Maintenance Procedure 7.0.1.7, "Troubleshooting Plant Equipment," Revision 5, Section 4.4.2, states "If scope/boundary or conditions change, Maintenance Planner or Shop Supervision is to complete another Troubleshooting Data Sheet Package." The inspectors concluded that worker failure to properly implement a maintenance procedure, resulting in the unplanned loss of a vital bus, was a violation.

This loss of the vital bus was characterized as having low safety significance based upon the significance determination process review for reactor safety. Deenergizing the essential bus made the equipment powered from this bus unavailable for mitigation of an accident. However, redundant equipment was continuously operable from another essential bus, and the deenergized bus automatically transferred and reenergized within approximately 2 seconds. We are treating this violation as a noncited violation, consistent with the Interim Enforcement Policy for pilot plants (50-298/9914-01.) Operations personnel documented this in their corrective action process as Significant Condition Report 99-0746.

1R04 Equipment Alignments

a. Inspection Scope

The inspectors performed a partial walkdown of Diesel Generating System 1 while System 2 was out of service. The inspection included a review of the component alignments designated in System Operating Procedure 2.2.20, "Standby AC Power System (Diesel Generator)," Revision 46.

The inspectors performed a partial walkdown of Core Spray System B while System A was out of service. The inspection included a review of the component alignments designated in System Operating Procedure 2.2.9.2A, "Core Spray Component Checklist (Div 2)" Revision 0.

b. Observations and Findings

The inspectors did not identify any findings.

1R05 Fire Protection

.1 Monthly Routine Inspection

a. Inspection Scope

The inspectors performed fire protection walkdowns to assess the material condition of plant fire protection equipment and proper control of transient combustibles. Specific risk-significant areas covered were those containing the reactor core isolation cooling system, high pressure coolant injection system, residual heat removal system, standby gas treatment systems, and both diesel generating systems.

b. Observations and Findings

The inspectors did not identify any findings.

.2 Annual Routine Inspection

a. Inspection Scope

On October 27, 1999, the inspectors observed an emergency preparedness exercise that involved a simulated fire in the service water pump room. The inspectors observed the fire brigade respond to this drill. The inspectors used the observation checklist of Inspection Procedure 71111, Attachment 5, as a guide.

b. Observations and Findings

The inspectors did not identify any findings.

1R09 Inservice Testing

a. Inspection Scope

The inspectors reviewed the performance of the following in-service test procedures:

- Procedure 6.1SW.101, "Service Water Surveillance Operation (Div 1)(IST)," Revision 5 C1
- Procedure 6.SW.202, "Service Water Power-Operated Valve Operability Test," Revision 4 C4

b. Observations and Findings

The inspectors did not identify any findings.

1R11 Licensed Operator Requalification

.1 Quarterly Simulator Training Review

a. Inspection Scope

On November 17, 1999, the inspectors attended a simulator exercise for operations Crew D. The inspectors reviewed the scenario, which included a tornado passing near the plant, a subsequent turbine trip with anticipated transient without scram conditions, and increasing radioactive releases. The inspectors observed the exercise for proper emergency plan usage, proper emergency declarations, and fidelity of the simulator to the actual control room.

b. Observations and Findings

The inspectors did not identify any findings.

1R12 Maintenance Rule Implementation

a. Inspection Scope

The inspectors reviewed maintenance rule goals and performance tracking of the service water system and the dc electrical system. The inspectors also reviewed various completed work packages for proper failure identification. The inspectors interviewed the acting Maintenance Manager regarding equipment failure documentation and data retrieval.

b. Observations and Findings

The inspectors did not identify any findings.

1R13 Maintenance Work Prioritization

a. Inspection Scope

Throughout the inspection period, the inspectors reviewed weekly and daily work schedules to determine when risk significant activities were scheduled. The inspectors discussed selected activities with operations and work control personnel regarding risk evaluations and overall plant configuration control. The inspectors discussed emergent work issues with work control center personnel and reviewed the prioritization of scheduled activities when scheduling conflicts occurred. Specific items reviewed during this period included thermography of switchyard components and service water pump rebuilding and testing.

b. Observations and Findings

The inspectors did not identify any findings.

1R14 Nonroutine Plant Evolutions

a. Inspection Scope

On October 18, 1999, inspectors reviewed recovery from an unplanned transfer of essential 4160 volt Bus 1G from its normal power supply to an alternate power supply. The inspectors reviewed response to and recovery from the following conditions:

$ Circulating Water Pump 1C tripped and the steam jet air ejectors isolated, causing reduced main condenser vacuum.

- **$** The reduced vacuum caused a turbine generator low vacuum pretrip.
- **$** Momentary loss of 4160 volt Bus 1G caused Primary Containment Group Isolations of the Reactor Building (Group 6) and Reactor Water Cleanup System (Group 3)
- **$** Loss of Bus 1G also caused the automatic start of Diesel Generator 2.

b. Observations and Findings

The inspectors did not identify any findings.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following operability evaluations for technical adequacy, applicable compensatory measures, and impact on continued plant operation:

- **$** Problem Identification Report 4-04993, OD Revision 0, AService Water Flow Out of Diesel Generator Intercoolers@
- **$** Problem Identification Report 4-05071, OD Revision 0, AElectrical Design Bases for Motor Operated Valves@
- **$** Problem Identification Report 4-02956, A OE Revision 1, AOperability Evaluation for RCIC SW-S24@

b. Observations and Findings

The inspectors did not identify any findings.

1R19 Postmaintenance Testing

a. Inspection Scope

The inspectors observed or evaluated the following postmaintenance tests to determine whether the tests confirmed equipment operability:

- **$** APRM power supply replacement and functional testing;
- **$** Core spray Pump A inservice testing; and
- **$** Postmaintenance testing of service water Pump C.

b. Observations and Findings

The inspectors did not identify any findings.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors observed or reviewed the following surveillance tests,

- **$** 6.2APRM.305, AAPRM System (Flow Bias and Startup) Channel Calibration,@ Revision 7
- **$** 6.2RR.302, AReactor Recirculation Flow Unit Channel Calibration (Div 2),@ Revision 4
- **$** 6.CRD.301, AWithdrawn Control Rod Operability IST Test,@ Revision 6

b. Observations and Findings

On November 11, 1999, operations personnel began the performance of Surveillance 6.CRD.301, AWithdrawn Control Rod Operability IST Test,@ Revision 6. During the test, a licensed operator withdrew control rod 34-35 from 10 inches to 12 inches. The procedure called for inserting the control rod from 10 inches to 8 inches. Surveillance Procedure 6.CRD.301, Section 8.1.3, states AInsert selected control rod one notch.@ Contrary to this step, the licensed operator withdrew the control rod one notch. The operator immediately recognized the error and notified the operations supervisor. The supervisor directed the operator to return Control Rod 34-35 to its previous position using Nuclear Performance Procedure 10.13, AControl Rod Sequence and Movement Control,@ Revision 35.

Operators and reactor engineers reviewed plant computer printouts of thermal limits and reactor power with the inspectors. The inspectors noted that no thermal limits were exceeded. However, they also noted that the plant thermal power peaked at slightly over 2394 Mwth. The licensed steady state thermal power for Cooper Nuclear Station is 2381 Mwth. Reactor engineers stated that, although the limit for steady state operation was exceeded, the maximum thermal power remained well below design basis transient limits.

This issue was characterized as having low safety significance based upon the significance determination process. The operator action of withdrawing the control rod, instead of inserting it, caused reactor power to exceed steady state licensed thermal power for a period of approximately 3 minutes. Reactor engineers verified that no thermal limits were exceeded and that design basis transient analysis permits brief operation at the power level attained during this transient. The inspectors concluded that the operator failed to properly insert the control rod as specified in Procedure 6.CRD.301, AWithdrawn Control Rod Operability IST Test,@ Revision 6. We are treating this violation as a noncited violation, consistent with the Interim Enforcement Policy for pilot plants (50-298/9914-02).

Operations personnel documented this in their corrective action process as Repetitive Condition Report 99-0824.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed the following plant temporary modifications with respect to design bases documentation and for adequate approvals and tracking:

- **$** Plant Temporary Modification 95-14, AMovement of Westinghouse Office to South End of Turbine Building 932 Foot Elevation@
- **$** Plant Temporary Modification 96-33, ADisabling of Diesel Fire Pump Remote Stopping Capability for Appendix R@

b. Observations and Findings

The inspectors did not identify any findings.

4OA1 Annual Emergency Preparedness Exercise

a. Inspection Scope

On October 27, 1999, the inspectors observed the annual emergency preparedness exercise.

b. Observations and Findings

The inspectors did not identify any findings.

4OA2 Meetings

.1 Exit Meeting Summary

On November 22, 1999, the inspectors conducted a meeting with plant management and presented the inspection results. The plant management acknowledged the findings presented. Plant management also informed the inspectors that no proprietary material was examined during the inspection.

ATTACHMENT

PARTIAL LIST OF PERSONS CONTACTED

Licensee

C. Behr, Assistant to the Plant Manager
R. Beilke, Senior Staff Health Physicist
M. Bergmeier, Control Room Supervisor
L. Dugger, Engineering Section Manager
J. Edom, Assistant to Operations Manager
M. Gillan, Outage Manager
W. Macecevic, Assistant to Plant Manager
E. McCutchen, Licensing Engineer
J. McMahan, Work Control Supervisor
J. Peters, Licensing Secretary
D. Van Der Kamp, Assistant Operations Manager

ITEMS OPENED, CLOSED, AND DISCUSSED

50-298/9914-01	NCV	Maintenance workers failed to properly implement a maintenance procedure, resulting in the unplanned loss and switching of a vital bus.
50-298/9914-02	NCV	A licensed operator failed to properly implement a surveillance procedure, resulting in the unplanned withdrawl of a control rod.

LIST OF ACRONYMS AND INITIALISMS USED

APRM	average power range monitor
CFR	Code of Federal Regulations
dc	direct current
MOV	motor-operated valve
NRC	U.S. Nuclear Regulatory Commission