

UNITED STATES NUCLEAR REGULATORY COMMISSION

REGION IV 611 RYAN PLAZA DRIVE, SUITE 400 ARLINGTON, TEXAS 76011-8064

July 20, 2000

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

SUBJECT: NRC INSPECTION REPORT NO. 50-298/00-08

Dear Mr. Swailes:

This refers to the inspection conducted on May 14 through June 24, 2000, at the Cooper Nuclear Station facility. The enclosed report presents the results of this inspection. The results of this inspection were discussed during meetings on May 25 and June 21, 2000, with you and Mr. J. McDonald, respectively, and other members of your staff.

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 a violation of NRC requirements occurred. This violation is being treated as a noncited violation (NCV), consistent with Section VI.A of the NRC Enforcement Policy. This NCV is described in the subject inspection report. If you contest the violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement, U.S. 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 and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/NRC/ADAMS/index.html (the Public Electronic Reading Room).

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

Sincerely,

/RA/

K. M. Kennedy, Chief Project Branch C Division of Reactor Projects

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

Enclosure:

NRC Inspection Report No. 50-298/00-08

cc w/enclosure:

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Only inspection reports to the following:

D. Lange (DJL)
NRR Event Tracking System (IPAS)
CNS Site Secretary (SLN)
Wayne Scott (WES)

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION REGION IV

Docket No.: 50-298

License No.: DPR 46

Report No.: 50-298/00-08

Licensee: Nebraska Public Power District

Facility: Cooper Nuclear Station

Location: P.O. Box 98

Brownville, Nebraska

Dates: May 14 through June 24, 2000

Inspectors: J. Clark, Senior Resident Inspector

M. Hay, Resident Inspector

Dennis W. Schaefer, Senior Physical Security Inspector

NRC Contractors (2)

Approved By: K. Kennedy, Chief, Project Branch C

Division of Reactor Projects

ATTACHMENTS: 1. Supplemental Information

2. NRC's Revised Reactor Oversight Process

SUMMARY OF FINDINGS

Cooper Nuclear Station NRC Inspection Report 50-298/00-08

This integrated inspection report covers a 6-week period of resident inspection and announced inspections by regional security inspectors.

The significance of issues is indicated by their color (green, white, yellow, red) and was determined by the Significance Determination Process in Inspection Manual Chapter 0609. The body of the report is organized under the broad categories of Reactor Safety, Safeguards, and Other Activities as reflected in the summary below.

Crosscutting Issue: Human Performance

• Green. Maintenance workers failed to follow an administrative procedure for equipment control and tagging. The workers operated the drywell personnel airlock while a danger tag was hanging on it. Through interviews conducted with maintenance personnel, the inspectors found that workers did not have an adequate understanding of the controls and restrictions associated with equipment tagging. The inspectors considered this to be a crosscutting human performance issue. The failure to follow the procedure for equipment tagging was a violation of Technical Specification 5.4.1 (a). This violation is being treated as a noncited violation in accordance with Section VI.A of the NRC Enforcement Policy and is in the licensee's corrective action program as Problem Identification Report 4-09638.

This noncited violation was characterized as a green finding using the significance determination process. It was determined to have very low risk significance because at least one drywell personnel airlock door remained operable at all times (Section 1R20).

Report Details

The plant was in cold shutdown for a forced outage at the beginning of the inspection period. The plant was restarted on May 26, 2000 and achieved full power on May 31. On June 18, a potential fuel rod leak was identified by release point and reactor coolant sample analysis. Plant power was reduced to approximately 55 percent on June 23, 2000, for localization testing for the potential fuel rod leak. The plant remained at this power level at the conclusion of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignments

a. <u>Inspection Scope</u>

Maintenance and engineering personnel examined or repaired numerous electrical connections for components in the residual heat removal and the reactor equipment cooling systems during an outage to correct numerous equipment environmental qualification deficiencies. (The results of a special inspection to review these discrepancies will be documented in NRC Inspection Report 50-298/00-07). Maintenance activities were carried out on a divisional outage basis. The inspectors reviewed logs, maintenance schedules, and tagging documents to determine if proper system configurations were being maintained on the operable division. The inspectors performed a partial walkdown of Loop B of the residual heat removal system and Loop A of the reactor equipment cooling system during maintenance activities on their redundant loops. The maintenance activities required several divisional swaps. The inspectors verified the correct configuration of valves and controls that had previously been operated to secure these systems.

b. Findings

There were no findings identified during this inspection.

1R05 Fire Protection

a. Inspection Scope

The inspectors performed routine plant tours to assess the material condition of fire protection equipment and proper control of transient combustibles. The specific risk-significant areas inspected included the high pressure coolant injection pump room and the cable spreading room.

b. <u>Findings</u>

There were no findings identified during this inspection.

1R11 Operator Requalification

.1 Quarterly Simulator Training Review

a. Inspection Scope

The inspectors observed a licensed operator requalification simulator training exercise. The inspectors reviewed the scope of the scenario and the expected operator responses. The inspectors also verified the fidelity of the simulator to the actual control room for the equipment operated or observed during the scenario. The inspectors observed the operators utilize the emergency plan, make emergency declarations, and conduct emergency communications.

b. Findings

There were no findings identified during this inspection.

1R12 <u>Maintenance Rule Implementation</u>

a. <u>Inspection Scope</u>

The inspectors reviewed the licensee's maintenance rule implementation for the following systems:

- Automatic depressurization
- Primary containment isolation system
- Drywell ventilation and cooling

The inspectors reviewed the selected systems based on their association with ongoing environmental qualification maintenance activities. The inspectors verified that engineering personnel were adequately tracking and trending failures and performance data for these systems. The inspectors also verified that problem identification and resolution forms were being written to document the environmental qualification deficiencies, that the forms were properly marked as maintenance rule related, and that they were being forwarded to engineering for further evaluation.

b. Findings

There were no findings identified during this inspection.

1R13 Risk Assessments

a. <u>Inspection Scope</u>

The inspectors reviewed the risk assessment performed for various aspects of equipment alignments conducted during outage conditions. Ongoing work for environmental qualifications required taking pieces of equipment, as well as whole divisions, in and out of service numerous times throughout the outage. The inspectors

verified that planning, maintenance, and operations personnel considered the impact of these activities on redundant equipment, potential losses of safety function, and overall plant safety. The inspectors verified that work control and operations personnel were aware of shutdown risk categories and applicable contingency actions. Specifically, the inspectors reviewed:

- Shutdown operation with shutdown cooling secured,
- Work on essential motor control centers, and
- Residual heat removal system motor operated valve inspections and repair.

b. <u>Findings</u>

There were no findings identified during this inspection.

1R14 Nonroutine Plant Evolutions

a. <u>Inspection Scope</u>

The inspectors reviewed licensee event reports for potential human errors and evaluation of risk significance.

b. <u>Findings</u>

The inspectors did not identify any cumulative human performance issues. The inspectors noted that the licensee had initiated or completed corrective actions for each of the reviewed items. Inspectors also reviewed each of the below licensee event reports using the significance determination process and determined them to have minor significance. These items are considered within the licensee's control and do not warrant further NRC attention. The following items are closed:

•	LER 1999-005-00	Failure to Perform Adequate Logic System Functional
		Testing

 LER 1999-007-00 Sump Z Inoperability Results In Technical Specification Required Shutdown

1R15 Operability Evaluations

a. <u>Inspection Scope</u>

The inspectors reviewed the adequacy of Operability Evaluation PIR 4-09650 pertaining to reactor core isolation cooling system leakage through Valve RCIC-CV-26CV. The inspectors reviewed applicable operations logs and discussed the evaluation with operations personnel.

The inspectors also reviewed the operability assessment associated with electrical splices for Core Spray Pump A. The inspectors discussed the splices and operability of the equipment with environmental qualification engineers.

b. Findings

There were no findings identified during this inspection.

1R19 Postmaintenance Testing

a. Inspection Scope

The inspectors reviewed the postmaintenance testing associated with environmental qualification maintenance activities. Maintenance personnel disconnected several pieces of electrical equipment and replaced the splices with different types of environmental qualifications treatments. The inspectors reviewed work packages and system configurations to ensure that equipment was properly verified for system operability and functional capability. The following specific components were reviewed:

- Motor power supplies to the reactor equipment cooling pumps
- Electrical terminations in Motor Control Center Q
- Drywell temperature instrument connections

b. <u>Findings</u>

There were no findings identified during this inspection.

1R20 Refueling Outage

a. <u>Inspection Scope</u>

The inspectors reviewed equipment control and tagging activities associated with the extended outage. The inspectors verified that tags were hung and appropriately configured to support the functions of the clearances.

b. <u>Findings</u>

On May 27, 2000, maintenance personnel operated the drywell personnel airlock while a danger tag was hanging on it. The inspectors verified that the danger tag was still in effect and had not been cleared by some previous action. The maintenance personnel were interviewed by their supervision. Maintenance supervision determined that the workers thought they had been given permission to operate the equipment when they were assigned the activity of inspecting strongbacks on the airlock inner door. The inspectors discussed the issue with operations and maintenance supervisors. The supervisors stated that it appeared the workers felt there were times that a danger-tagged piece of equipment could be operated.

The inspectors reviewed Administrative Procedure 0.9, "Tagout," Revision 24. The inspectors noted that the procedure did not permit the operation of a danger-tagged

component. Even under specific emergency conditions, outlined in the procedure, operations personnel were required to direct the clearance of the tag before operation. The inspectors conducted independent interviews of six other mechanical, electrical, and instrument and controls personnel. Each of the craft personnel indicated that, in certain instances, it was acceptable to operate danger-tagged equipment. They also informed the inspectors that this type of operation had been performed in the past. The inspectors were concerned that craft personnel did not understand the restrictions placed on operating danger-tagged equipment. The inspectors shared these observations with plant management. Both plant management and the inspectors were additionally concerned that this attitude could be widespread. The inspectors considered this to be a cross-cutting human performance issue.

Technical Specification 5.4.1(a) requires, in part, that written procedures be established, implemented, and maintained covering applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Procedures for performing equipment control and tagging are referenced in Appendix A.

The failure of maintenance personnel to follow Administrative Procedure 0.9 is a violation of Technical Specification 5.4.1(a). This violation is being treated as a noncited violation (50-298/0008-01), consistent with Section VI.A of the NRC Enforcement Policy. The licensee documented these issues in their corrective action process as Problem Identification Report 4-09638.

The inspectors used the significance determination process to evaluate the operation of the tagged component. It was determined to have very low risk significance because at least one drywell personnel airlock remained operable at all times.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors observed or reviewed the following tests:

- Surveillance Procedure 6.2CS.101, "Core Spray Test Mode Surveillance Operation (IST) (DIV 2)," Revision 12
- Surveillance Procedure 6.2CSCS.101, "REC Critical Header Fan Coil Units Operability Test (DIV 2)," Revision 5

b. Findings

There were no findings identified during this inspection.

3. SAFEGUARDS

Cornerstone: Physical Protection

3PP3 Response to Contingency Events (71130.03)

a. Inspection Scope

The inspectors completed the following inspection elements:

- Reviewed licensee event reports and safeguards event logs to identify problems in response and response capabilities
- Reviewed performance indicators relating to response and alarm equipment performance to determine if problems with any sections of the alarm system were predictable and exploitable by an adversary
- Reviewed licensee's current protective strategy, including analysis of established target sets and response program implementing procedures; review included licensee's documented response plan, defense strategy, time lines, number of armed responders including their location, armament, capabilities, and tactics
- Reviewed the plant operations staff participation in defining and validating the overall protective strategy
- Examined the protected area intrusion detection system to identify areas of potential exploitable vulnerabilities in the system; examined any exploitable areas identified
- Examined the vital area defensive positions
- Conducted three table top drills with security shift supervisors; verified that the licensee's response only included those capabilities outlined in its security plan, protective strategy, and implementing procedures; determined, through table top drills, the licensee's capability to protect vital area target sets against the design basis threat, including the licensee's ability to interdict the adversary in a timely manner with sufficient numbers of responders, appropriately armed and in protected positions
- Observed 10 armed security officers demonstrate weapons capabilities with handguns and contingency weapons
- Reviewed response training requirements and weapons firearm proficiency training requirements for regulatory and tactical content
- Evaluated the training of operators in the central and secondary alarm stations

- Examined the fields of view provided by the assessment aids in the alarm stations
- Reviewed licensee records of response drill performance and verified the licensee's ability to identify issues regarding uncorrected performance weaknesses and program vulnerabilities
- Verified that the licensee's assessment of problems and issues were of sufficient scope to address the key attributes of the overall protective strategy and response to contingency events

b. <u>Findings</u>

The inspectors did not identify any findings during this inspection.

OTHER ACTIVITIES

4OA1 PI Verification

Inspection Scope

The inspectors completed the following inspection elements:

- Reviewed logs and plant reports to verify the accuracy of reported data for unplanned reactor scrams
- During plant tours, verified that locked high radiation areas were properly secured
- Reviewed the licensee's program for collection and submittal of performance indicator data; specifically, a random sampling of security event logs, maintenance logs, and corrective action reports were reviewed for the following program areas:
 - (1) Fitness-for-duty/personnel reliability program performance
 - (2) Personnel screening program performance
 - (3) Protected area security equipment performance index
- Reviewed the license's security tracking, trending, and analysis of perimeter security equipment problems.

b. Findings

There were no findings identified during this inspection.

4OA5 Other

.1 (Closed) Unresolved Item 50-298/98003-01: containment spray switch operability evaluation relied on manual action.

The inspectors reviewed operability evaluations and design documents for new containment spray pressure switches installed during the equipment qualification forced outage. The inspectors verified that the switches met the design requirements. The inspectors also verified that documentation issues and appropriate reviews to the updated safety analysis report were captured in Problem Identification Report 4-09445. The inspectors determined that no further inspection is required.

4OA6 Meetings

.1 <u>Exit Meeting Summary</u>

On May 25, 2000, the inspectors conducted a meeting with Mr. J. Swailes, Vice President, Nuclear, and other members of licensee management to discuss the results of the security inspection. On June 21, 2000, the resident inspectors conducted a meeting with Mr. J. McDonald, Plant Manager, and other members of licensee management and presented the results of the resident inspection activities.

The plant management acknowledged the findings presented. Plant management also informed the inspectors that no proprietary material was examined during the inspection.

ATTACHMENT 1

PARTIAL LIST OF PERSONS CONTACTED

Licensee

- M. Boyce, Risk and Regulatory Affairs Manager
- P. Carlock, Security Operations Specialist
- T. Chard, Manager, Radiation Protection
- B. Dettman, Manager, Security
- L. Dugger, Engineering Support Manager
- Z. Easley, Supervisor, Fitness-for-Duty/Access Authorization
- K. Ellis, Shift Supervisor, Security
- C. Fidler, Assistant Maintenance Manager
- M. Gillan, Outage Manager
- M. Hale, Senior Manager, Site Support
- M. Hamm, Supervisor, Security Operations
- B. Houston, Quality Assurance Operations Manager
- M. Kaul, Operations Support Specialist
- W. Macecevic, Operations Manager
- S. Mahler, Assistant Licensing Manager
- E. McCutchen, Senior Licensing Engineer
- J. McDonald, Plant Manager
- T. Milke, Supervisor, Security Shift
- J. Osborne, Security Specialist
- B. Rash, Senior Engineering Manager
- R. Sessoms, Quality Assurance Senior Manager
- J. Sumpter, Project Manager, Licensing
- J. Swailes, Vice President, Nuclear

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed During this Inspection

50-298/0008-01	NCV	Failure to Follow Equipment Control and Tagging Procedure
		(Section 1R20)

Previous Items Closed

50-298/1998-003-01	URI	Containment Spray Switch Operability Evaluation Relied on
		Manual Action (Section 4OA5)
50-298/1999-005-00	LER	Failure to Perform Adequate Logic System Functional Testing (Section 1R14)
		·
50-298/1999-007-00	LER	Sump Z Inoperability Results In Technical Specification Required
		Shutdown (Section 1R14)

DOCUMENTS REVIEWED

Safeguards Event Logs from September 1, 1999, through April 21, 2000

Fitness-for-Duty 6-Month Reports dated July 28, 1999, and February 28, 2000

Problem Identification Report 4-08714 dated April 21, 2000

Problem Identification Report 4-09566 dated May 25, 2000

Problem Identification Report 4-09567 dated May 25, 2000

Cooper Nuclear Station Security Procedure 1.6, "Firearms, Issuance and Maintenance," Revision 9.4

Cooper Nuclear Station Security Procedure 2.11.3, "Equipment Testing Microwave," Revision 1.5

Cooper Nuclear Station Security Procedure 2.13, "Security Exercises," Revision 7.2

Cooper Nuclear Station Security Procedure 3.11, "Security Alerts," Revision 3

Cooper Nuclear Station Security Procedure 3.2, "Attack Threat/Attack," Revision 2

CNS Security/Access/FFD Cornerstone Performance Indicator Data Collection Guide, Revision 0

Cooper Nuclear Station Security Policy 1, "CNS Security/Access/FFD Cornerstone Performance Indicator Data Collection Guide," Revision 0

Maintenance Work Requests for closed circuit television cameras and perimeter microwave intrusion detection zones

Testing records for "Cooper Nuclear Station Quarterly Microwave Zone Compliance Test," dated January 12 and May 3, 2000

Testing records for: "Security System Intrusion Detection Device Performance Testing," dated August 26, 1999, and January 6, 2000 (as attached to Cooper Nuclear Station Operations Manual: Instrument and Control Procedure 14.10.6. Revision 7)

Minor Security Exercise Evaluations (45)

Major Security Exercise Evaluations (7)

Table-Top Security Exercise Evaluations (58)

Cooper Nuclear Station Access Search Test/Evaluations (254)

Security Self-Assessments (42) (in areas of: access control; keys and locks; contingency plan implementation; warehouse X-ray machine; security procedures; detection aids; safeguards information; protected area barriers; vehicle barrier system; searches of personnel, material, and vehicles; communications; testing and maintenance of security equipment; keys and locks; training and qualification plan; and postoutage).

Quality Assurance Audit Report 99-03, "Nuclear Security," dated March 2, 1999

Quality Assurance Audit Report 99-10, "Fitness-for-Duty and Access Authorization," dated August 4, 1999

Quality Assurance Surveillance Report S405-9902, "Fitness for Duty/Access Authorization," dated October 21, 1999

Quality Assurance Audit Report 00-03, "Nuclear Security," dated February 16, 2000

ATTACHMENT 2

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety

Radiation Safety

Safeguards

- Initiating Events
- Mitigating Systems
- Barrier Integrity
- Emergency Preparedness
- Occupational
 - Public

Physical Protection

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the significance determination process, and assigned colors of GREEN, WHITE, YELLOW, or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, or RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: http://www.nrc.gov/NRR/OVERSIGHT/index.html.