E-Mail report to D. Lange (DJL)
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)

E-Mail notification of report issuance to the CNS SRI and Site Secretary (JAC, SLN).

E-Mail notification of issuance of all documents to Nancy Holbrook (NBH).

bcc to DCD (IE01)

bcc distrib. by RIV:

Regional Administrator	Resident Inspector
DRP Director	RIV File
DRS Director	RITS Coordinator
Branch Chief (DRP/C)	R. Wise
Branch Chief (DRP/TSS)	
Project Engineer (DRP/C)	

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

MAR - 2 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. 50-298/00-02

Dear Mr. Swailes:

This refers to the inspection conducted on February 14-16, 2000, at the Cooper Nuclear Station facility. This was a biennial heat sink performance inspection that was performed in accordance with Inspection Procedure 71111.7 under the pilot plant study for the risk informed baseline inspection program. The primary objective of this inspection was to evaluate your ability to detect any potential heat exchanger performance testing deficiencies which could mask degraded performance. In addition, a Maintenance Rule implementation inspection was performed in accordance with Procedure 71111.12 on the storm drain system.

The enclosed report presents the results of this inspection. The inspection found that activities related to the testing and maintenance of residual heat removal and reactor equipment cooling heat exchangers supported reliable operation. The inspection also found that your scope of the Maintenance Rule program related to the storm drain system was appropriate.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure 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,

Dale A. Powers

Dr. Dale A. Powers, Chief
Engineering and Maintenance Branch
Division of Reactor Safety

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

Enclosure:
NRC Inspection Report No.
50-298/00-02

cc w/enclosure:
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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.:	50-298
License No.:	DPR 46
Report No.:	50-298/00-02
Licensee:	Nebraska Public Power District
Facility:	Cooper Nuclear Station
Location:	P.O. Box 98 Brownville, Nebraska
Dates:	February 14-16, 2000
Inspectors:	Raymond P. Mullikin, Senior Reactor Inspector Engineering and Maintenance Branch Charles J. Paulk, Senior Reactor Inspector Engineering and Maintenance Branch
Approved By:	Dr. Dale A. Powers, Chief Engineering and Maintenance Branch Division of Reactor Safety
Attachments:	1. Supplemental Information 2. NRC's Revised Reactor Oversight Process

SUMMARY OF FINDINGS

Cooper Nuclear Station
NRC Inspection Report No. 50-298/00-02

The report includes the results of an inspection of the licensee's testing and maintenance of the residual heat removal and reactor equipment cooling heat exchangers.

The report also includes the review of the scope of the Maintenance Rule program and the storm drain system.

There were no findings identified in these areas.

Report Details

Summary of Plant Status

The plant was operated at full power during the inspection.

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

1R07 Heat Sink Performance

a. Inspection Scope

The inspectors reviewed the results of the most recent thermal performance tests for Residual Heat Removal System Heat Exchangers A and B and Reactor Equipment Cooling Heat Exchanger A, and the results of the most recent maintenance activities regarding these heat exchangers. The inspectors' review of the heat exchangers was selected based on risk significance, and was performed to verify that testing and inspection/maintenance activities were adequate to ensure proper heat transfer and identify any expected degradation. Also, the inspectors verified whether chemical treatments, tube leak monitoring, and methods used to control biotic fouling corrosion were being implemented and were sufficient to ensure required heat exchanger performance. The inspectors verified whether the condition and operation of the selected heat exchangers were consistent with design assumptions in heat transfer calculations.

b. Observations and Findings

There were no findings identified during this inspection.

1R12 Maintenance Rule Implementation

c. Inspection Scope

The inspectors reviewed the physical layout of the storm drain system, flood procedures, and historical data related to heavy rains. This review also included the scope of the Maintenance Rule program and the storm drain system.

d. Observations and Findings

The inspectors noted that the power block, the intake structure, and other structures that contained equipment required to support plant operations that would be subject to 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," were located at, or above, elevation 903' 6". The berm surrounding the site was at elevation 903'. The storm drain openings were located at, or below, elevation 902' 6". In addition to the difference in elevations, the slope of the areas surrounding these structures would direct the water to the storm drains or to the river.

The inspectors found that, with the storm drains completely plugged, the flood water could reach elevation 903' (6 inches below the entrance to any structure subject to 10 CFR 50.65). The water would then flow to the surrounding land and eventually the river. The inspectors found that the exclusion of the storm drain system from the scope of the Maintenance Rule program was appropriate.

4. OTHER ACTIVITIES

4OA1 Identification and Resolution of Problems

a. Inspection Scope

The inspectors verified that the licensee had entered significant heat exchanger/sink performance problems in their corrective action program. The inspectors reviewed twelve problem identification reports in the licensee's corrective action program that related to heat sinks in order to verify that the licensee adequately identified and resolved problems.

b. Observations and Findings

There were no findings identified during this inspection.

4OA5 Management Meetings

.1 Exit Meeting Summary

The lead inspector presented the inspection results to members of licensee management during an inspection exit on February 16, 2000. The licensee representatives acknowledged the results of the inspection.

The inspectors asked the licensee's representatives whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT 1

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

L. Dugger, Assistant Manager, Engineering Support
S. Freborg, Engineer, Engineering Support
S. Mahler, Assistant Manager, Licensing
E. McCutchen, Licensing Engineer
J. Swailes, Vice President - Nuclear

NRC

P. Alter, Resident Inspector, Grand Gulf
J. Clark, Senior Resident Inspector
M. Hay, Resident Inspector

INSPECTION PROCEDURES USED

71111.07	Heat Sink Performance
71111.12	Maintenance Rule Implementation

ITEMS OPENED, CLOSED, AND DISCUSSED

None

DOCUMENTS REVIEWED

Problem Identification Reports

2-27269
2-28612
2-28620
3-50953
4-01871
4-02307
4-03793
4-05946
4-06074
4-06253
4-06553
4-06569

Procedures

Performance Evaluation Procedure 13.15.1, "Reactor Equipment Cooling Heat Exchanger Performance Analysis," Revision 20, performed January 20, 2000 (as-found, Train A), and February 3, 2000 (as-left, Train A)

Performance Evaluation Procedure 13.17, "Residual Heat Removal Heat Exchanger Performance Evaluation," Revision 6, performed September 18, 1999 (Train B), and Revision 7, performed January 8, 2000 (Train A)

Maintenance Procedure 7.2.42.1, "REC Heat Exchanger Maintenance," Revision 0, performed January 19, 2000

Maintenance Procedure 7.2.42, "Heat Exchanger Cleaning," Revision 11, performed October 20 and 30, 1998

Emergency Procedure 5.1.3, "Flood," Revision 27

Emergency Procedure 5.3.10, "Control Building Basement Flooding," Revision 14

Drawings

Project No. 4E12315, Figure No. 3, "Site Drainage Plan NPPD Cooper Nuclear Station - SWMP Nemaha County, Nebraska," Revision N02

4004, "Civil Paving, Grading & Drainage Sheet No. 1," Revision N01

4005, "Civil Paving, Grading & Drainage Sheet No. 2," Revision N01

4006, "Civil Paving, Grading & Drainage Sheet No. 3," Revision N06

4007, "Civil Paving, Grading & Drainage Sheet No. 4," Revision N07

Miscellaneous Documents

Design Calculation NEDC 93-184, "Verification of Senior Engineering's Calculation on the Thermal Performance of the RHR Heat Exchangers"

Design Change 91-144, "RHR Heat Exchanger Tube Plugging Margin"

Engineering Evaluation EE98-113, "Instrument Accuracy Values for Procedure 13.15.1, "REC Heat Exchanger Performance Analysis," dated August 11, 1998

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	• Occupational	• Physical Protection
• Mitigating Systems	• Public	
• Barrier Integrity		
• Emergency Preparedness		

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, and 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.