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

November 2, 2000

EA-00-220

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

SUBJECT: NRC INSPECTION REPORT NO. 50-298/00-16

Dear Mr. Swailes:

On August 31, 2000, the NRC completed an inspection at your Cooper Nuclear Station. The purpose of the inspection was to evaluate the performance during your biennial emergency preparedness exercise and the critique following the exercise. The enclosed report presents the results of that inspection which were discussed with Mr. John McDonald and other members of your staff by telephone on October 11, 2000.

This inspection was an examination of activities as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspection consisted of a selected examination of procedures and representative records, observations of activities, and interviews with personnel.

This report discusses an issue of low to moderate safety significance. It involved the failure of your formal exercise critique process to identify performance problems related to a risk-significant emergency planning standard. Specifically, the offsite dose assessment staff did not correctly characterize the core condition during the simulated release of radioactive material, causing development of non-conservative protective action recommendations for members of the public living near the plant. Procedural and training issues contributed to the core characterization error. This error was not identified by your formal exercise critique process but was brought to your attention by the NRC inspectors after discussing your critique findings. The apparent finding was assessed using the Emergency Preparedness Significance Determination Process and was preliminarily determined to be white. White issues have some increased importance to safety and may require additional NRC inspection.

While we believe that we have sufficient information to make our final significance determination for this preliminary inspection finding, we are giving you the opportunity to provide us additional information on the apparent finding's significance, either in writing or at a regulatory conference. If you choose to provide additional information in writing, you should do so within 30 days of the date of this letter. Please contact Ms. Gail Good at (817) 860-8215 within 7 days of the date of this letter to notify us of your intent. If we have not heard from you within the time specified, excepting a granted extension, we will continue with our significance determination decision and you will be advised by separate correspondence of the results of our

deliberations on this matter. In addition, please be advised that the characterization of the apparent finding described in the enclosed inspection report may change as a result of further NRC review.

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). To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Sincerely,

/RA/

Arthur T. Howell III, Director
Division of Reactor Safety

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

Enclosure:
NRC Inspection Report No.
50-298/00-16

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.:	50-298
License No.:	DPR 46
Report No.:	50-298/00-16
Licensee:	Nebraska Public Power District
Facility:	Cooper Nuclear Station
Location:	P.O. Box 98 Brownville, Nebraska 68321
Dates:	August 28-31, 2000
Inspectors:	W. Maier, Senior Emergency Preparedness Inspector P. Elkmann, Emergency Preparedness Inspector M. Hay, Resident Inspector J. Dyke, Resident Inspector, Wolf Creek Generating Station (observer)
Approved By:	Gail M. Good, Chief Plant Support Branch

ATTACHMENTS:

Attachment 1:	Supplemental Information
Attachment 2:	NRC's Revised Reactor Oversight Process

SUMMARY OF FINDINGS

Cooper Nuclear Station
NRC Inspection Report No. 50-298/00-16

IR 05000298-00-16, on 8/28-31/2000, Nebraska Public Power District, Cooper Nuclear Station. Exercise Evaluation.

The inspection was conducted by regional inspectors and resident inspectors. This inspection identified one finding. The significance of findings is indicated by their color (green, white, yellow, red) using NRC inspection manual chapter 0609, "Significance Determination Process". Findings for which the final significance is to be determined are indicated by "TBD" and are subject to further NRC evaluation to determine their final significance.

Inspector Identified Findings

Cornerstone: Emergency Preparedness

- TBD. The formal exercise critique process failed to identify a dose assessment performance problem which caused the issuance of incorrect protective action recommendations for offsite populations. There were three opportunities for protective action recommendations, and only one was performed correctly. During its initial critique, the licensee assessed that three protective action recommendation opportunities had been successfully completed.

  The issue was preliminarily determined to have low to moderate safety significance because the issue involved a failure of the licensee's critique process to identify a risk-significant emergency preparedness planning standard problem (Section 1EP1).

Report Details

1. REACTOR SAFETY
Cornerstone: Emergency Preparedness

1EP1 Exercise Evaluation (7111401)

a. Inspection Scope

The inspectors reviewed the objectives and scenario for the 2000 exercise to determine if the exercise would acceptably test major elements of the emergency plan. The scenario included an offsite emergency, equipment and electrical power failures, a loss of reactor coolant, core damage, a radiological release, and a meteorological change to support demonstration of the licensee's capabilities to implement its emergency plan.

The inspectors evaluated exercise performance by focusing on the risk-significant activities of classification, notification, protective action recommendations, and assessment of offsite dose consequences in the following emergency response facilities:

- Simulator Control Room
- Technical Support Center
- Operations Support Center
- Emergency Operations Facility

The inspectors also assessed personnel recognition of abnormal plant conditions, the transfer of emergency responsibilities between facilities, communications, and the overall implementation of the emergency plan.

The inspectors attended the post-exercise critiques in each of the above facilities to evaluate the initial licensee self-assessment of exercise performance. The inspectors also attended a subsequent presentation of critique items to plant management.

b. Findings

The formal exercise critique process failed to identify a dose assessment performance problem which caused the issuance of incorrect protective action recommendations for offsite populations. The dose assessment staff chose a non-conservative source term by analyzing release data for a non-degraded core throughout the period of the offsite radiological release. The core, in fact, had been declared degraded by licensee emergency management 68 minutes prior to the beginning of the release when reactor coolant sample results revealed that the fuel clad barrier was lost. The first dose assessment performed after the start of the release did not prescribe any protective action recommendations beyond that specified by plant conditions, which was to evacuate all sectors out to 2 miles, evacuate the downwind sectors out to 5 miles, and shelter all remaining areas in the 10 mile emergency planning zone. Using the correct source term, the recommendation would have been to evacuate all sectors out to 2

miles, evacuate the downwind sectors out to 10 miles, shelter all remaining areas in the 10 mile emergency planning zone, and evaluate downwind areas beyond the 10 mile zone for additional protective actions. There were three opportunities for protective action recommendations, and only one was performed correctly. During its initial critique, the licensee assessed that three protective action recommendation opportunities had been successfully completed.

Lack of clear guidance in the dose assessment procedure for evaluating reactor coolant chemistry sample results contributed to the dose assessment staff's determination of a non-degraded core. The procedure did not provide coolant activity level thresholds for determining a degraded core. The licensee stated that responders were trained to rely on additional procedural guidance to determine the threshold levels for loss of the fuel clad boundary; however, none of the four dose assessment staff and management were cognizant of or implemented this guidance.

The licensee's preliminary investigation of the issue, performed during the inspection, revealed some causal factors for the performance deficiency as well as the failure to capture the issue by the critique process. The licensee recognized the dose assessment procedure problem described above. It also recognized that most of the dose assessment expertise resided with a small group of responders, the majority of whom were involved in the exercise scenario development and unavailable for exercise participation. Finally, the licensee identified that objective performance standards for dose assessment and protective actions developed as a result of dose assessments were not identified before the exercise for the evaluator to assess the actual dose assessment performance.

The licensee placed the item into its corrective action system as Problem Identification Report 0557. During the exit, licensee management committed to correct the procedural problem before September 9, 2000 and to brief senior emergency responders and dose assessment staff on the lessons learned from the exercise performance and critique.

4 OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Drill and Exercise Performance

a. Inspection Scope

The inspectors verified a sample of the licensee’s reported results of the Drill and Exercise Performance indicator by reviewing records for licensee drills and simulator training scenarios conducted during the first two calendar quarters of 2000.

b. Findings

No findings of significance were identified.

.2 Emergency Response Organization Readiness

a. Inspection Scope

The inspectors verified the licensee's reported results for the Emergency Response Organization Drill Participation performance indicator by reviewing the emergency response organization database tracking drill and exercise participation within the previous eight calendar quarters. The inspectors reviewed drill participation attendance records for a sample of 14 emergency responders to determine if database records for these responders were accurate.

b. Findings

No findings of significance were identified.

.3 Alert and Notification System Reliability

a. Inspection Scope

The inspectors verified the licensee's reported results for the Alert and Notification System Reliability performance indicator by reviewing offsite siren test results performed in the third quarter of 1999 through the second quarter 2000.

b. Findings

No findings of significance were identified.

4OA6 Management Meeting

.1 Exit Meeting Summary

On August 31, 2000, the inspectors conducted a meeting with Mr. J. Swailes, Vice President - Nuclear, and other members of plant management to present the inspection results. The managers acknowledged the findings presented. On October 11, 2000, the inspectors conducted a follow-up telephone conversation with Mr. John McDonald and other members of the licensee's staff to discuss the re-characterization of one inspection finding.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary material was identified during the inspection.

ATTACHMENT 1

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

M. Boyce, Manager, Risk and Regulatory Affairs
P. Caudill, Senior Manager, Technical Services
J. Dixon, Acting Manager, Radiation Protection
J. Florence, Acting Manager, Training
M. Hale, Senior Manager, Site Support
B. Houston, Manager, Quality Assurance Operations
S. Mahler, Assistant Manager, Nuclear Licensing and Safety
J. McDonald, Plant Manager
D. Robinson, Acting Senior Manager, Quality Assurance
J. Swailes, Vice President, Nuclear
R. Zipfel, Manager, Emergency Preparedness

ITEM OPENED

Opened

298/00016-01	FIN	Failure of exercise critique process to identify a risk-significant planning standard problem

DOCUMENTS REVIEWED

Procedure/Document	Title	Revision
	Emergency Plan for Cooper Nuclear Station	33

Emergency Plan Implementing Procedures:

EPIP 5.7.2	Shift Supervisor EPIP	13
EPIP 5.7.6	Notification	31
EPIP5.7.8	Activation Of OSC	19
EPIP 5.7.9	Activation of EOF	19
EPIP 5.7.10	Personnel Assembly and Accountability	21
EPIP5.7.11	Evacuation of Non-Designated Site Personnel	11
EPIP5.7.12	Emergency Radiation Exposure Control	12

EPIP 5.7.16	Release Rate Determination	20
EPIP 5.7.17	Dose Assessment	23
EPIP 5.7.18	Off-site and Site Boundary Monitoring	17
EPIP 5.7.20	Protective Action Recommendations	12

Plant Procedures:

AP 0-PI-01	Performance Indicator Program	0
EPDG-2 Att. G-1	Emergency Preparedness Cornerstone Performance Indicator Data Collection Guide	7

Miscellaneous:

Emergency Response Organization Roster, dated August 28, 2000

Emergency Preparedness Drills, Exercises, and Actual Events, third calendar quarter, 1999 through second calendar quarter, 2000

Emergency Preparedness Performance Indicator Documentation and Data Review Forms, third calendar quarter, 1999 through second calendar quarter, 2000

Cooper Nuclear Station 2000 Biennial Evaluated Exercise Scenario

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.