UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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June 7, 2002

David L. Wilson, Vice President of
Nuclear Energy
Nebraska Public Power District
P.O. Box 98
Brownville, Nebraska 68321

SUBJECT: COOPER NUCLEAR STATION - NRC SUPPLEMENTAL INSPECTION REPORT NO. 50-298/02-06

Dear Mr. Wilson:

On May 9, 2002, the NRC completed a supplemental inspection at your Cooper Nuclear Station. The enclosed report documents the inspection findings, which were discussed with Mr. M. Coyle, Site Vice-President, and other members of your staff.

The NRC identified a White inspection finding that was documented in NRC Inspection Report 50-298/01-12. This finding involved the implementation of an improper validation process for your biennial written requalification examinations conducted between June 20 and July 27, 2000, for which you did not implement prompt and appropriate corrective actions.

The risk-significant performance weakness associated with this finding involved a failure to recognize the apparent examination compromise, the resultant decrease in the examination's ability to discriminate the minimum level of required knowledge, and the failure of two operators on the written examination when the compromised examinations were regraded. The failure to maintain examination discrimination capability allowed these operators to perform licensed duties without remediation.

This supplemental inspection was conducted to provide assurance that the root and contributing causes of the White inspection finding were identified, to conduct an independent assessment of the extent of the condition, to provide assurance that the corrective actions are sufficient to address the root and contributing causes, and to prevent recurrence of these issues. Detailed observations, assessments, and conclusions of the inspection are presented in the enclosed inspection report.

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/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Elmo E. Collins, Director
Division of Reactor Safety

Docket: 50-298
License: DPR-46

Enclosure:
NRC Inspection Report No.
50-298/02-06

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U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Dockets:	50-298
Licenses:	DPR 46
Report No.:	50-298/02-06
Licensee:	Nebraska Public Power District
Facility:	Cooper Nuclear Station
Location:	P.O. Box 98 Brownville, Nebraska
Dates:	April 29 through May 3, 2002
Inspectors:	T. Stetka, Senior Operations Engineer S. McCrory, Senior Operations Engineer
Approved By:	Anthony T. Gody, Chief Operations Branch Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000298-02-06; Nebraska Public Power District; on April 29-May 3, 2002; Cooper Nuclear Station; supplemental inspection for a “White” inspection finding applicable to the mitigating systems cornerstone in the reactor safety strategic performance area.

The inspection was conducted by two regional specialist inspectors. No findings were identified. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, “Reactor Oversight Process,” Revision 3, dated July 2000.

Cornerstone: Mitigating Systems

The U.S. Nuclear Regulatory Commission (NRC) performed this supplemental inspection to assess the licensee’s evaluation associated with a compromise in the integrity of written requalification examinations and a failure of the corrective action process to adequately evaluate the requalification examinations for the effects of the compromise. This performance issue was previously characterized as having low to moderate risk significance (“White”) in NRC Inspection Report 50-298/01-12. During this supplemental inspection, performed in accordance with Inspection Procedure 95001, the inspectors determined that the licensee performed a comprehensive root cause evaluation, determined the extent of condition, and developed appropriate corrective actions. The licensee identified the primary root cause of the examination compromise issue to be requalification examination program procedure inadequacies and examination process problems. The licensee also identified two additional contributing causes for this event, which involved a failure to take appropriate corrective actions when the compromise was originally identified in July 2000 and involved changes made to the examination validation process by a new training staff. The inspectors determined that the extent of condition involved only the year 2000 requalification examinations and did not extend to prior years. To assure that the licensed operating staff was qualified and that their corrective actions were effective, the inspectors noted that the licensee conducted their biennial written requalification examinations in January 2002 rather than July 2002. The examinations were developed in accordance with NUREG-1021, "Operating Licensing Examination Standards for Power Reactors." The method by which the licensee validated the examinations maintained the integrity of the examinations.

Given the licensee’s acceptable performance in addressing the requalification examination issue, the White finding associated with this issue will only be considered in assessing plant performance for a total of four quarters in accordance with the guidance in Inspection Manual Chapter 0305, “Operating Reactor Assessment Program.” With the exception of corrective actions involving training procedure revisions, all corrective actions had been implemented. These training procedures are routinely reviewed during inspections performed as a part of the baseline inspection program.

Report Details

01 Inspection Scope (95001)

This supplemental inspection was performed by the NRC to assess the licensee's evaluation associated with a compromise of the integrity of written requalification examinations and a failure of the corrective action process to adequately evaluate the effects of this compromise. This performance issue was previously characterized as "White" in NRC Inspection Report 50-298/01-12 and is related to the mitigating system cornerstone in the reactor safety strategic performance area.

02 Evaluation of Inspection Requirements

02.01 Problem Identification

a. Determination of whom (i.e., licensee, self-revealing, or NRC) identified the issue and under what conditions.

The licensee initially identified a potential examination compromise during the week of July 17 or July 24, 2000. However, it was not until August 10, 2000, that the potential compromise was documented in Problem Identification Report (PIR) 4-10812. This PIR was closed on December 12, 2000, and the licensee decided that no changes to the examination program were required at that time and that the examination was not compromised by the validation method. Subsequently, as the result of preparing the 2001 annual licensed operator requalification examinations, Notification 1009668 was written on July 10, 2001, again raising the question of a potential examination compromise. Just prior to the NRC biennial requalification program inspection, this notification was changed to Resolve Condition Report (RCR) 2001-0715 on November 8, 2001, to initiate the licensee's root cause evaluation process. Again, this evaluation failed to identify that an examination compromise occurred. Further details of this examination compromise identification are documented in NRC Inspection Report 50-298/01-12.

On January 2, 2002, the NRC identified a potential "White" finding because a compromise of the examination integrity occurred and the licensee failed to take the necessary actions to assure that personnel that were subsequently determined to have failed the examination were not placed back on shift to conduct licensed activities. As the result of the NRC's finding, the licensee expanded their investigation of this event and wrote Significant Condition Report (SCR) 2001-1495 on February 6, 2002.

b. Determination of how long the issue existed, and prior opportunities for identification

The licensee considered the first prior opportunity to identify the potential compromise issue was June 26, 2000, when a high question error rate was identified on the written requalification examinations. At that time a root cause evaluation was conducted and documented in RCR 2000-0712 on

June 29, 2000. Sometime in July 2000, a second opportunity was missed when training department personnel identified that the validation method they were using could result in a potential examination compromise. However, due to personnel error, this compromise was not entered into the licensee's corrective action program until August 10, 2000, as PIR 4-10812. When the licensee performed a root cause evaluation as documented in RCR 2001-0715, the root cause evaluation failed to identify that a examination compromise had occurred. Following a NRC requalification inspection completed on January 2, 2002, the licensee was notified that the NRC considered that a potential examination compromise had occurred. The licensee then conducted an investigation under SCR 2001-1495, which was completed on February 6, 2002. In this report the licensee acknowledged that an examination compromise did occur and that two licensed operators were allowed to return to shift duties without proper remediation. However, while the SCR provided comprehensive documentation of the event, the inspectors noted that the lack of timeliness for placing the problem into the corrective action program (i.e., the initiation of PIR 4-10812) was not documented in the SCR. Based on this review, the inspectors concluded that the licensee's failure to identify the compromise issue existed from June 26, 2000, through February 6, 2002.

c. Determination of the plant-specific risk consequences (as applicable) and compliance concerns associated with the issue

The NRC considered the examination compromise to have low to moderate safety significance. This was based on the licensee's failure to recognize and immediately correct the apparent examination compromise and the resultant failure of two operators on the written examination when the compromised examinations were regraded. This failure allowed these operators to perform licensed duties without remediation. However, a safety significance determination performed by the licensee determined that no human performance issues occurred as the result of any actions taken by these personnel.

02.02 Root Cause and Extent of Condition Evaluation

a. Evaluation of methods used to identify root causes and contributing causes.

The licensee used a combination of structured root cause analysis techniques to evaluate this issue, including event and causal factors and TapRoot® analyses. The inspectors noted that the licensee's process involved document/procedure reviews and conducting interviews with key personnel. The inspectors considered the root cause evaluation method to be effective as evidenced by the identification of the missed opportunities and contributing causes of the event and the development of the causal factors. The inspectors noted some limitations with the TapRoot® analyses that are discussed in the following paragraphs.

b. Level of detail of the root cause evaluation.

The inspectors evaluated the root causes that were documented in the licensee's SCR. The inspectors considered the licensee's root cause evaluation to be thorough and complete and it was noted that the licensee attributed the root cause to have two causal factors. The first causal factor involved the failure to identify a requalification examination program procedure inadequacy. The second causal factor involved a failure to identify examination process problems when there was a high failure rate on the examinations. The inspectors noted that the licensee also considered two other contributing causes for the event, the failure to take appropriate corrective actions when the compromise was originally identified in July 2000 and documented on August 10, 2000, in PIR 4-10812, and changes made to the examination validation process by a new training staff. Due to the licensee's use of the TapRoot® Fault Tree methodology, which did not address human factor causes, the process did not clearly identify these human factor issues as root causes.

c. Consideration of prior occurrences of the problem and knowledge of prior operating experience.

The licensee's evaluation included a review of industry operating experience to determine if the issue had been identified in any other power reactor facilities. The licensee determined that the industry operating experience reports did not provide any additional information that would have prevented recurrence of the examination compromise problem. The inspectors verified the licensee's results by review of the evaluation report. In addition, the licensee conducted a historical investigation of the problem at the facility. This investigation did not reveal any previous incidents which resulted in any examination compromises. Based on record reviews and personnel interviews, the inspectors concluded that the licensee's results were thorough and accurate.

d. Consideration of potential common causes and extent of condition of the problem

The licensee's evaluation considered the extent of condition associated with the compromised requalification examinations. The licensee determined that the extent of the condition for the requalification program was limited to the year 2000 written examinations. This determination was based on the fact that previous examinations conducted from 1993 to 1998 were conducted by the same individual and that individual validated the examinations through the use of certified instructors in lieu of licensed operators. Furthermore, the examinations conducted prior to year 2000 were written by plant personnel and not by contractors. In addition, the new written requalification examinations that the licensee conducted in 2002 to demonstrate the effectiveness of their corrective actions, were initially validated by certified instructors with the subsequent examinations validated by licensed operators after they had taken their examinations. While the inspectors verified the licensee's determinations through record reviews and personnel interviews, they noted that the SCR did

not clearly document that the extent of condition did not extend prior to or after the year 2000 requalification examinations.

To determine if the requalfication examination issue extended to other licensee training programs, the licensee reviewed 14 examinations from their other training programs (non-licensed personnel training). From this review, the licensee determined that one training program, the electrical maintenance training program, did not have sufficient differences between consecutive examinations. The licensee considered this to be a non-compliance with their procedural requirements. The licensee also reviewed their data bases to determine if there were any additional associated regulatory non-compliance issues. No additional non-compliance issues were identified. Based on these reviews the inspectors determined that the extent of condition was limited to the operator requalification program and the electrical maintenance training program.

The inspectors also reviewed the validation method used in the licensee's initial licensed operator training program. The inspectors concluded from this review that the examination compromise issue did not extend to this program.

02.03 Corrective Actions

a. Appropriateness of corrective actions

The licensee took the following specific corrective actions to address the root cause of the requalification examination compromise:

- The licensee revised its office desk guide procedures to clearly specify when licensed operators can be used to validate requalification examinations.

- The licensee conducted a review of their corrective action databases for the period of July 6, 2000 through May 5, 2001. This review was performed to identify all human performance issues that occurred during this period to determine if any of these human performance issues could be attributed to the two individuals that had failed the re-graded requalification examinations and were returned to shift duties without remediation. The licensee concluded that none of these issues involved these specific individuals.

- Training management conducted a "lessons learned" discussion with all personnel within the training department to assure that performance standards, accountability, and corrective action program expectations were understood.

The inspectors concluded that the proposed corrective actions to address all the root and contributing causes were appropriate. The inspectors also noted that while the documented corrective actions were silent regarding the lack of timeliness for issuing PIR 4-10812, the licensee's corrective actions (specifically the "lessons learned" discussions) were sufficiently broad to address this aspect of the issue.

b. Prioritization of corrective actions

All but two of the licensee's actions to address the root causes were completed within 3 months and were completed in sufficient time to ensure that future examination development and validation did not result in examination compromises. The two actions that were not completed involved enhancement revisions to procedures. These were scheduled to be completed by July 2002.

c. Establishment of schedule for implementing and completing the corrective actions

The licensee's plan for correcting the requalification examination compromise was appropriate and assured that the corrective actions were completed prior to the development and validation of future examinations. With the exception of the two corrective actions items previously discussed, all items were completed.

d. Establishment of quantitative or qualitative measures of success for determining the effectiveness of the corrective actions to prevent recurrence.

To assure the effectiveness of the corrective actions to prevent recurrence, the licensee decided to conduct new written requalification examinations in January 2002 instead of the scheduled July 2002. One purpose of these examinations was to provide a method to measure the success of their corrective actions toward preventing a recurrence of examination compromises. As the result of conducting these examinations, the licensee concluded that the 2002 requalfication examinations were properly validated and that there was no examination compromise. All but one of the operators passed the new examinations and this individual was properly remediated prior to returning to licensed duties.

To verify that the licensee's actions were successful and effective, the inspectors reviewed the 2002 examination validation and content. The content review included a validation of question reuse and similarity among questions on different examinations. The material reviewed consisted of five examinations that contained approximately 40 questions each.

The inspectors observed that each examination contained approximately 30 questions that were common to both the reactor operator (RO) and senior operator (SRO) examinations and 10 questions that were either RO or SRO specific. The inspectors observed that the SRO-specific questions were written to the appropriate level to differentiate RO/SRO knowledge. The inspectors noted that the sample plan breadth and depth were appropriate and that overall question quality was very good.

The inspectors observed through a review of the examination outlines that only one question was used in more than one examination. The inspectors compared 165 questions for similarities that may provide an advantage to anyone who participated in the validation process and subsequently took an examination. The inspectors observed that only 4 of the 165 questions reviewed had similarities that may have given an individual, very knowledgeable in-test item construction, some advantage. However, the inspectors concluded that the validation method used and the number and nature of similarly worded questions did not challenge examination validity or integrity. From these reviews, the inspectors concluded that the licensee had established appropriate measures to assess the effectiveness of their corrective actions.

03. Management Meetings

Exit Meeting Summary

The inspector presented the inspection results to Mr. J. Hutton, Plant Manager, and other licensee personnel at the conclusion of the on-site inspection on May 2, 2002. A final exit interview was conducted via telephone on May 9, 2002, to Mr. M. Coyle, Site Vice-President. The licensee acknowledged the findings presented.

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

ATTACHMENT

LIST OF PERSONS CONTACTED

M. Schaible, Operations Training Programs Supervisor
D. Van Der Kamp, Manager-in-Training
H. McDaniel, Nuclear Instructor 1
R. Creason, Surveillance Coordinator
P. Fleming, Acting Risk and Regulatory Affairs Manager
R. Fischer, Emergency Preparedness Drill Coordinator
B. Ackerman, Nuclear Instructor 1
S. Blake, Nuclear Instructor 1
L. Jones, Engineering Support Instructor
C. Quimby, I&C Program Guardian
J. Christensen, Training Manager

LIST OF DOCUMENTS REVIEWED

Procedures

Operator Desk Guide 210, "Operations Department Examination Security," Revision 13

Operator Desk Guide 213, "LO Requal Exam Development," Revision 11

Operator Desk Guide 206, "Development of Non-faulted and Faulted JPMs," Revision 3

Operator Desk Guide 217, "Initial License NRC Written Examination Review and Validation," Revision 3

Nuclear Training Procedure 1.10, "Desk Guide Development and Revision," Revision 3

Nuclear Training Procedure 4.1, "Training Material Development and Revision," Revision 21

Nuclear Training Procedure 4.2, "Examination Development," Revision 12

Problem Identification Reports (PIRs)

PIR 4-10812, During the 2000 licensed operator biennial examination, operations personnel were utilized to validate the following week's examination, dated August 10, 2001

PIR 2-11269, The examination materials provided by the contractor for HLC 97-01 were of unacceptable quality, dated September 16, 1998

PIR 2-11270, 3 of 12 license candidates failed an independent audit examination and were disenrolled, dated September 16, 1998

PIR 2-11281, Examination security and integrity considerations, as identified in NUREG-1021, Revision 8 Interim, identifies that individuals with knowledge of examination content sign security agreement (Form ES-201-3 or equivalent) and refrain from participation in any instruction, evaluation, or other training activities, dated August 12, 1998

Miscellaneous Documents

Significant Condition Report (SCR) 2001-1495, White Finding-Operator Requal Program, Revision 1, dated January 29, 2002

Resolve Condition Report (RCR) 2001-0715, "2000 Licensed Operator Requal Analysis," dated November 8, 2001

NPPD letter NLS2002018, "Clarification Related to NRC Inspection Report 50-298/0112," dated January 25, 2002;

Notes from the February 1, 2002, Regulatory Conference

NPPD letter NLS2002027, "Follow-up Response to the Regulatory Conference Held February 1, 2002, in Regard to an Apparent Violation at Cooper Nuclear Station," dated February 15, 2002

NPPD letter NLS2002048 dated April 15, 2002, "Reply to a Notice of Violation."

Resolve Condition Report (RCR) 2000-0712, "Apparent Cause of High Question Error Rate on the SRO/RO Biennial Exam the Week of June 26," dated August 23, 2000

Resolve Condition Report (RCR) 2-11281, “A potential for violation of NUREG 1021, Revision 8, “Operator Licensing Examiner Standards,” existed in that operations training personnel who signed an examination security agreement (ES-201) and participated in dynamic scenario validation subsequently participated in evaluating initial license candidates during simulator evaluations/observations,” dated October 19, 1998.

Significant Condition Report (SCR) 98-0623, “Initial License Class 97-1 had lower performance than expected on the NRC written examination, Action No. 14” dated January 11, 1999