UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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ARLINGTON, TEXAS 76011-8064

January 18, 2001

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

SUBJECT: COOPER NUCLEAR STATION - NRC'S INITIAL EXAMINATION REPORT NO. 50-298/00-301

Dear Mr. Swailes:

On December 22, 2000, the NRC completed an examination at the Cooper Nuclear Station. The enclosed report documents the examination results, which were discussed on December 7, 2000, at the conclusion of the operating examination week with Mr. J. MacDonald and other members of your staff and on December 22, 2000, with Mr. R. Fisher at the conclusion of the written examinations.

The examinations included an evaluation of six applicants for reactor operator licenses and four applicants for senior operator licenses. We determined that five applicants for reactor operator and four applicants for senior operator licenses satisfied the requirements of 10 CFR Part 55, and the appropriate licenses have been issued.

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).

Sincerely,

/**RA**/

John L. Pellet, Chief
Operations Branch
Division of Reactor Safety

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

Enclosure:
NRC Inspection Report No.
50-298/00-301

Attachments: (1) Supplemental Information
(2) NRC's Revised Reactor Oversight Process

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.:	50-298
License No.:	DPR 46
Report No.:	50-298/00-301
Licensee:	Nebraska Public Power District
Facility:	Cooper Nuclear Station
Location:	P.O. Box 98 Brownville, Nebraska
Dates:	December 4-22, 2000
Inspectors:	T. O. McKernon, Senior Operations Engineer, Operations Branch H. F. Bundy, Senior Operations Engineer, Operations Branch R. E. Lantz, Operations Engineer, Operations Branch M. E. Murphy, Senior Operations Engineer, Operations Branch
Accompanying By:	A. A. Sanchez, Examiner in Training, Operations Branch
Approved By:	J. L. Pellet, Chief, Operations Branch Division of Reactor Safety

SUMMARY OF FINDINGS

Cooper Nuclear Station
NRC Inspection Report No. 50-298/00-301

IR 05000298-00-301; on 12/4-21/2000; Nebraska Public Power District; Cooper Nuclear Station. Initial Licensed Operator Examination.

NRC examiners evaluated the competency of six applicants for reactor operator licenses and four applicants for senior operator licenses at the Cooper Nuclear Station. The NRC developed the written and operating examinations using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 8, Supplement 1. The NRC examiners administered the operating tests on December 4-8, 2000. The written examinations were administered to all applicants on December 15, 2000, by licensee proctors in accordance with instructions provided by the chief examiner.

Cornerstone: Cross Cutting Issues (Human Performance)

- One of the ten applicants failed the written examination. Overall, passing written examination scores averaged about 88 percent (Section 40A4.1).

DETAILS

4OA4 Initial License Examination

.1 Operator Knowledge and Performance

a. Inspection Scope

The NRC developed the written and operating examinations using licensee training and operations staff on the security agreement to validate the examinations. On December 15, 2000, the licensee proctored the administration of the written examination to all 10 applicants. The NRC graded the written examinations, analyzed the results, and incorporated evaluation of post-examination comments for examination revision submitted by the licensee on December 21, 2000.

The examination team administered the various portions of the operating examination to the 10 applicants on December 4-7, 2000. Each reactor operator applicant participated in 2 dynamic simulator scenarios and received a control room and licensee walkthrough test, which consisted of 10 system tasks. The senior operator applicants participated in 2 dynamic simulator scenarios and received a control room and facilities walkthrough test, which consisted of 10 system tasks for instant senior reactor operator. The three applicants seeking upgrade from reactor operator to senior operator received a control room and facilities walkthrough test, which consisted of 5 system tasks. Additionally, the examination team tested each applicant on 5 subjects in 4 administrative areas with administrative tasks.

b. Findings

Nine of the 10 applicants passed the written examinations. The final determination was made using the final answer key and incorporating comments resulting from licensee and NRC post-examination analysis. The average score for the reactor operator applicants was 86.8 percent and ranged from 77 to 97 percent. Scores for the senior operator applicants ranged from 89 to 90 percent with an average of 89.3 percent.

During the post-examination review, the licensee recommended that five questions should be modified to accept additional answers on the written examination. The licensee’s post-examination comments and the text of the examination questions may be accessed in the ADAMS system under the accession numbers listed in Attachment 1.

The licensee recommended changes to the acceptable answers for five written examination questions. The chief examiner reviewed the recommendations and found the licensee's determination inappropriate for four of the five questions. Recommendations were reviewed based on the specific questions, applicant responses, and other items testing similar systems or areas. The NRC accepted one licensee recommendation as having two acceptable answer choices. The other licensee recommendations reviewed were rejected. The following is a brief discussion of each of the questions reviewed and the final NRC resolutions:

Question 29 (Senior Operator/Reactor Operator)

Comment: The question gave plant conditions and required the applicant to select the alternate control rod insertion method most likely to insert control rods. According to Procedure 5.8.3, "Alternate Control Rod Insertion Methods," Leg "D" of Attachment 1, the "Individual Scram Test Switch" would insert control rods individually. This method would create the maximum differential pressure across a CRDM, providing the "most likely" method to insert any given control rod. The licensee recommended that choices "C" (original answer) and "A" should be accepted. Choice "C" would be "most likely" for ALL control rods and choice "A" would be "most likely" for any given control rod.

NRC Resolution: Recommendation not accepted. The question required the method most likely to insert control rods. For the plant conditions, which described a hydraulic lock, the scram must be reset and the scram discharge volume must be drained before an operator could successfully scram the control rods, individually or collectively. Choice "A" does not include this operation and so is technically incorrect. Therefore, only the original answer, choice "C" is the correct answer.

Question 74 (Senior Operator/Reactor Operator)

Comment: The question required the applicant to select how the feedwater control system will control reactor water level under the stated conditions. The licensee recommended that choices "B" (original answer) and "C" were correct and should be accepted. If the level transmitter dropped rapidly downscale then the "track and hold" mode of the reactor feedwater pumps (RFPs) will activate. Thus, choice "B" (original choice) was a correct choice.

If the level transmitter failed slowly or did not fail below 10mA, the RFPs would respond and try to make up the apparent low reactor water level. This would continue until the feedwater flow was above rated conditions. It is at this time that "Flow Limit" LED would illuminate. Therefore, choice "C" was also a correct answer.

NRC Resolution: Recommendation not accepted. Choice "C" is incorrect because it does not answer the question. The question required identifying how the feedwater control system would control reactor water level under the given conditions. The LED illumination would occur if the level transmitter failed "slowly," but choice "C" did not describe how the feedwater control system would control reactor water level, as required by the question. Therefore, choice "B" was the only correct answer to this question.

Question: 80 (Reactor Operator Only)

Comment: The question required the applicant to select the statement that best described the relationship between the main turbine and the extraction steam and drains system. The licensee recommended that choices "A" (original answer) and "D" were both correct. Westinghouse Drawing 721J120 showed the effects of a loss of auto-stop oil via the interface valve, which supported choice "A." Burns & Roe Drawing 3033 and page 19 of Procedure 2.2.29 supported choice "D."

NRC Resolution: Recommendation not accepted. Based on review of all applicable referenced material and discussion with licensee staff, the heater trip solenoid valve is normally de-energized and must be energized to isolate the air supply and trip the associated nonreturn valve. The Burns and Roe Drawing 3033 refers to a different solenoid valve. Therefore, choice "D" was not technically correct. Choice "A" was the only correct answer.

Question: 94 (Reactor Operator Only)

Comment: The question required the applicant to select the statement that correctly described the response of the system to a flow signal malfunction. The licensee recommended that choices "A" (original answer) and choice "D" were correct. The licensee stated that if the flow signal failed high, then the flow controller would fail low, resulting in HPCI speed going to idle. Under these conditions, placing the HPCI flow controller in Manual would allow control of HPCI speed and flow. This supports choice "D" as also a correct answer.

NRC Resolution: Recommendation not accepted. Choice "D" was the only answer in which it was stated that the controller failed low, then HPCI speed would decrease to idle speed and manual control could be taken on the flow controller. However, according to the applicable reference material for controller failures, manual flow controller operation is not available. Therefore, choice "D" is technically incorrect. Choice "A" is the only correct answer.

Question: 98 (Reactor Operator Only)

Comment: The question required the applicant to select which event presented the most serious threat to the integrity of the fuel cladding while at 100 percent power. The licensee recommended that choice "C" (original answer) and choice "D" should be accepted. For certain types of fuel and operating history, choice "D," a reactor feedwater flow controller malfunction to maximum flow could be the most serious threat to the fuel cladding.

NRC Resolution: Recommendation accepted. According to the "Supplemental Reload Licensing Report for Cooper Nuclear Station Cycle 20 Reload 19," depending on the fuel type and the operating history of the fuel, different accidents can be more challenging to the integrity of the fuel cladding. Choices "C" and "D" are both accepted

One of the 10 initial applicants failed the written examination. Overall, passing written examination scores averaged 88 percent.

.2 Initial Licensing Examination Development

The licensee training staff validated the written and operating examinations in accordance with NUREG-1021, Revision 8, Supplement 1.

2.1 Examination Outline and Examination Package

a. Inspection Scope

The NRC examiner in training developed the examination outlines and the examination. The chief examiner and a peer reviewer reviewed the draft submittal against the requirements of NUREG-1021, Revision 8, Supplement 1. The NRC conducted an onsite validation of the operating examinations the week of Novemember 20, 2000. The written examination was administered by the licensee on December 15, 2000.

b. Findings

The licensee staff supported the examination validation well and provided critical inputs so that the examination could be administered as scheduled.

2.2 Simulation Facility Performance

a. Inspection Scope

The examiners observed simulator performance during both the validation and examination week.

b. Observations and Findings

No findings were identified during validation or examination administration.

2.3 Examination Security

a. Scope

The examiners reviewed examination security both during the onsite preparation week and examination administration week for compliance with NUREG-1021 requirements.

b. Observations and Findings

No findings were identified.

40A5 Management Meetings

Exit Meeting Summary

The examiners presented the inspection results to Mr. John MacDonald, Plant Manager, and other members of the licensee management at the conclusion of the operating examination week on December 7, 2000. The licensee acknowledged the findings presented. Subsequent to the written examination administered on December 15, 2000, overall results were discussed on December 22, 2000, with Mr. Robert Fischer, Operations Training Supervisor.

The licensee did not identify as proprietary any information or materials examined during the inspection.

ATTACHMENT 1

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

J. Dills, Operations Training
R. Fisher, Operations Training Supervisor
W. Macecevic, Operations Manager
S. Mahler, Licensing
J. McDonald, Plant Manager
D. Pease, Operations

NRC

J. Clark, Senior Resident

ADAMS ACCESSION NUMBERS

1. Final Reference Examination and Answer Key Accession Number ML01070293
2. Post Exam Comments Accession Number: ML010090092

ATTACHMENT 2

NRC'S REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) 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 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 used 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 plan, as described in the Action Matrix.

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