ENCLOSURE 1

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.:	50-298
License No.:	DPR-46
Report No.:	50-298/96-16
Licensee:	Nebraska Public Power District
Facility:	Cooper Nuclear Station
Location:	Nebraska Public Power District 1414 15th Street Columbus, Nebraska
Dates:	December 2-12, 1996
Inspectors:	Thomas Meadows, Lead Inspector Howard Bundy, Reactor Engineer Ryan Lantz, Reactor Engineer Mary Miller, Senior Resident Inspector
Approved By:	John L. Pellet, Chief, Operations Branch, DRS

ATTACHMENTS:

Attachment 1:	Supplemental Information
Attachment 2:	Simulation Facility Report

EXECUTIVE SUMMARY

Cooper Nuclear Station
NRC Inspection Report 50-298/96-16

This inspection assessed the licensed operator requalification program to determine whether the program incorporated appropriate requirements for evaluating operators' mastery of training objectives in accordance with 10 CFR 55.59(c). The assessment included an evaluation of the program's controls to assure a systems approach to training and evaluation of operating crew performance during annual requalification examinations. This included review of the facility documents, observation of operating and staff crews during dynamic simulator scenarios and plant walkthroughs, and an assessment of the examination evaluators' effectiveness in conducting and evaluating examinations. The inspection also included an evaluation of the plant referenced dynamic simulator used to conduct the examinations and the reference documentation used to produce the examinations and some extended control room observations.

Operations

- Overall, the licensed operator requalification training program effectively implemented a systems approach to training and maintained the condition of licenses. However, the inspectors observed some recurring performance deficiencies in crew command, control, communication, and procedure usage skills during abnormal emergency operations. The inspectors identified an apparent weakness in the program's ability to effectively maintain operator performance at expected levels so that previously identified performance deficiencies and weaknesses do not reappear. (Sections 04.1, 05.1, 05.2, 05.3, 05.4, 05.5).

- Licensed operators displayed good communication skills, teamwork, plant system knowledge, and ownership of plant equipment, with the exception of two crew failures noted during the simulator evaluations (Sections 01.1, 04.1, F8.1).

- Annual requalification examinations were comprehensive and discriminated at the appropriate level (Section 05.1).

- The licensed operator requalification facility evaluators administered the examinations professionally and in accordance with accepted industry practices (Section 05.2).

- The licensee's training department was responsive to feedback and revised the training program as appropriate (Section 05.3).

Plant Support

- Plant housekeeping was good (Section F8.1).

Report Details

I. Operations

O1 Conduct of Operations

O1.1 Observations of Operator Performance

a. Inspection Scope (71715)

Using the guidance of Inspection Procedure 71715, "Sustained Control Room and Plant Observation," the inspectors observed activities in the control room during normal plant operations. The inspectors compared the observed performance with expected performance as described in facility policies and procedures. Between December 9 and 12, 1996, the inspector observed three different shift crews for continuous periods ranging from 2 to 4 hours. The inspector observed three crew turnovers and approximately 10 hours of control room operations involving power operations.

b. Observations and Findings

The inspector noted that the individual operator turnover briefings were thorough and detailed, and that both the oncoming and offgoing operators were alert and diligent in providing a professional turnover. Post-relief crew briefs were thorough and comprehensive with each member of the crew providing a status of activities and equipment for their areas.

The inspector observed consistently good and effective communications in accordance with management expectations. Operator communications were clear and unambiguous, and communication support equipment appeared reliable and adequate. Communications outside the control room were generally formal and consistently effective.

Control room conduct was formal. The shift supervisor was closely involved in shift operations. Access to the control room was formally controlled and noise levels were maintained low and non-distracting to the control board operators. The licensed senior operator maintained a professional environment in the control room, which was noteworthy due to the impending startup and increased activity in the plant and the control room.

Operators routinely exhibited good self checking and peer checking when manipulating controls. The inspector observed that the operators performed peer checks on the designated components.

c. Conclusions

The inspector concluded that operators exhibited good communication, command and control, annunciator response, procedure usage, self checking and peer checking.

O4 Operator Knowledge and Performance

O4.1 Operator Performance on Annual Requalification Examinations

a. Inspection Scope (71001)

The inspectors observed the performance of two shift crews during their annual requalification evaluations. Each crew was composed of five active licensed operators and one shift technical engineer. This Licensed Operator Requalification Cycle 96-20 began on November 11, 1996, and ended on December 20, 1996. The cycle consisted of an annual operating examination, that included simulator dynamic performance evaluations and five job performance measures for each licensed operator. Also included was a written examination for each operator, consisting of a simulator static examination and an open reference examination. It was the conclusion of a two-year licensed operator requalification program.

b. Observations and Findings

Six of eight crews passed all portions of their evaluations. Two crews failed the dynamic simulator evaluation.

The causes for the failures were primarily performance deficiencies in crew command, control, communication, and procedure usage skills. On December 4-9, 1996, the inspectors observed the dynamic simulator, job performance measures, and written evaluations for two crews. One of these crews failed, which brought the total crew failures for this cycle up to two. Two individuals on this crew were also failed, one by missing an individual critical task, and the other on performance competencies. The licensee evaluators expressed concerns that one of the licensed reactor operators that was failed on individual competencies may not be competent to continue to perform license duties and removed the individual from shift for further evaluation. The licensee's remediation actions are discussed further in Section O5.4.b below.

Operator performance in the simulator was consistent with that observed in the control room with the exception of formal communication practices. During stressful simulator scenario conditions, formal communications would break down at times. This weakness was most obvious in the two crews that failed, but also apparent, to a lesser degree, in the other six crews evaluated during this cycle.

The licensee's staff acknowledged that crew communications weaknesses had been identified and improvements incorporated into the training program through feedback process.

c. Conclusions

The inspectors concluded that, with the exception of two crew failures, which were primarily caused by performance deficiencies in crew command, control communication, and procedure usage, the licensed operators exhibited good knowledge and ability during the requalification examinations.

After the formal remediation and re-examination of the two failed crews were completed, the inspectors also concluded that all operators had demonstrated an adequate ability to continue licensed duties with the exception of one reactor operator who had been failed on competencies.

O5 Operator Training and Qualification

O5.1 Review of Requalification Examinations

a. Inspection Scope (71001)

The inspectors performed a review of the annual requalification examinations, including operating tests and biennial written examination, to evaluate general quality, construction, and difficulty level. The inspectors also reviewed the methodology for developing the requalification examinations.

b. Observations and Findings

The operating examinations consisted of job performance measures and dynamic simulator scenarios.

The facility utilized the General Electric Owner's Group template evaluation scenarios as guidance in the development of the scenarios used for the requalification examinations. The scenarios followed the guidelines of NUREG 1021, "Operator Licensing Examiner Standards," Revision 7, Supplement 1, in complexity and quantitative event requirements. The scenarios were written with clear objectives, expected operator actions, and critical task identification and evaluation criteria.

The job performance measures were adequate in scope and depth, and covered a broad range of topics as required by the training program and the regulations. Generally, critical steps were appropriately identified, although the inspectors identified three job performance measures that contained one to two steps important to successful task completion that were not annotated as critical steps.

The inspectors noted that many of the job performance measures required significantly more time for the applicants to complete than was indicated as the validation time for the task. One task in particular, Job Performance Measure 201-004, "Operate the CRD System to Bring the Reactor Critical," showed a validation time of 15 minutes. Each of the three licensees observed performing the task required approximately 1 hour to complete the task, not counting procedure review prior to beginning rod withdrawal. The inspectors determined that an inadequate time validation was done on this job performance measure, and this ultimately impacted the remaining schedule for job performance measures. Additionally, expectations for the method to complete this task appeared to be unclear. Each applicant utilized continuous rod withdrawal control differently, from not at all to the maximum allowed by procedure. During the crew debrief of examination results by management and the other evaluators, these expectations were not clarified, even though the use of continuous rod withdrawal was addressed. The inspector noted that plant engineering encouraged the use of continuous rod withdrawal to minimize challenge to the control rod drive system during startups. The licensee staff acknowledged that the Job Performance Measure 201-004 needed re-evaluation and that management expectations of the use of continuous rod withdrawal control needed to be clarified and consistently communicated to engineering, training, and operations.

The inspectors determined that the written examinations were of the appropriate breadth of coverage and depth of knowledge, and of particularly effective discriminating value.

However, the examination development program, NTP 4.2, "Test Item and Examination Development," Revision 0, was vague with respect to examination question repeatability criteria. Steps 5.3 - 5.3.3 gave several alternatives to ensure no compromise of examinations in a given program year or cycle, as follows:

- ". . . no examinations will be repeated, with a minimum of 25% of the questions different from any other examination."

- ". . . sufficient time elapse between examinations to preclude compromise."

The inspector noted that the wording is vague enough to allow more than 50 percent repeat on successive examinations, and that proposed Week 5 and 6 written examinations for this year's annual examinations were identical, with the exception of two to three questions, to the Weeks 1 and 2 examinations, respectively.

When questioned as to how examination security would be preserved, the licensee stated that a procedure change request would be submitted to specify a time period of 1 month as sufficient time to preclude compromise. The inspectors determined

that examination security measures were being followed in accordance with program requirements and appeared adequate to reasonably prevent physical compromise of an examination. No compromise events were known or suspected to have occurred during this requalification program cycle.

c. Conclusions

The inspectors concluded that the examinations were well constructed, challenging, and discriminated at the appropriate level. The written examination section of the examination development procedure was interpretive, which presented a potential challenge to examination security.

The licensee acknowledged that they needed to clarify their written examination development procedure guidance to preclude a potential challenge to examination security.

O5.2 Examination Administration

a. Inspection Scope (71001)

The inspectors observed the administration of all aspects of the requalification examinations to determine the evaluators' abilities to administer an examination and assess adequate performance through measurable criteria. The inspectors also noted the fidelity of the plant simulator to support training and examination administration. The inspectors observed two operations shift crews, of five licensed operators each, during conduct of the dynamic simulator scenarios and job performance measure evaluations. Five licensed operator requalification training evaluators and one operations management evaluator were observed participating in one or more aspects of administering the examinations, including pre-examination briefings, observations of operator performance, individual and group evaluations of observations, techniques for job performance measure cuing, and final evaluation documentation.

b. Observations and Findings

The evaluators conducted the examinations professionally, and thoroughly documented observations for later evaluation. Job performance measure cues were provided appropriately as needed, with no inadvertent cuing observed.

A formal method of evaluation was used that reviewed crew and individual critical tasks following the scenario observations, and then competencies for the crew and for individuals when appropriate. During the simulator evaluations the inspectors noted that the evaluator staff was particularly effective in identifying and properly categorizing operator performance deficiencies and weaknesses. The inspectors also observed strong operations staff participation. The post-scenario examination evaluation caucuses were well organized and efficient with the evaluation team

reaching a crisp, accurate consensus on performance results in a timely manner. This minimized overall crew stress. The inspectors observed that the crews held independent self-critical caucuses, led by their shift supervisors, who were also involved with developing remediation plans, when necessary. The inspectors also observed that shift supervisor ownership for crew and individual performance was a management expectation and was apparent in most cases.

The inspectors noted that the performance of the simulator in supporting the examination process was good.

c. Conclusions

The facility evaluators administered the examinations professionally and in accordance with industry standards. The facility evaluators effectively identified deficiencies or weaknesses in the trainees to feedback into the training program.

05.3 Review of Training Feedback System

a. Inspection Scope (71001)

The inspectors verified the methods and effectiveness of the licensed operator requalification training program feedback system.

b. Observations and Findings

During interviews, licensed operators and training management described several methods for providing feedback on the licensed operator requalification training program. The inspectors noted that these methods were appropriately covered in training department procedures and guidelines. Written requests could be made with either the training feedback form or training work request form. A response could be requested if the training feedback form was used and was required if the training work request form was used. At the beginning of a training week the shift supervisor and training instructor would discuss the areas for training emphasis during the week. At the end of the training week the shift supervisor would present all written feedback and any other feedback to the training instructor. The other crew members also participated in this debriefing. The training instructor then summarized all the feedback. Training feedback was also accepted by training instructors and management in any other format. A combined monthly report of student feedback was then issued to training supervisors and lead instructors. This feedback, together with management field observations, management training observations, and other data was reviewed monthly by an operations training coordination committee, and quarterly by a training effectiveness review committee. A management training effectiveness review committee consisting of senior facility managers met semi-annually.

The operators interviewed expressed satisfaction with the training feedback program. After reviewing student feedback summaries and committee reports, the inspectors concluded that training issues were being properly identified and addressed by management.

The inspectors reviewed the condition reports listed in Attachment 2 to determine if appropriate corrective action training had been planned and implemented. The inspectors found that it was difficult to determine if appropriate training had been performed in many instances by reading the condition report. Selected training issues identified in the condition reports were discussed with operators during interviews. The inspectors determined that the operators had received appropriate training on the issues presented.

c. Conclusions

Operations personnel utilized several diverse and effective methods for providing feedback to the licensed operator requalification training program. The training department, with involvement by senior management through participation in training effectiveness review committees, responded to the training feedback provided.

O5.4 Review of Remedial Training Program

a. Inspection Scope (71001)

The inspectors assessed the adequacy of the effectiveness of the remedial training conducted during this requalification cycle and the training planned for the next cycle to ensure that it addressed operator or crew performance weaknesses.

b. Observations and Findings

With respect to failures of Crews B and F (February 1996), D (November 1996), and a second failure for F (December 1996) during Requalification Training Cycle 96-20, the inspectors identified recurring performance deficiencies in crew command, control, communication, and procedure usage skills. The inspectors identified an apparent weakness in the program's ability to effectively maintain operator performance at expected levels so that previously identified performance deficiencies and weaknesses did not reappear. Furthermore, the inspectors assessed that Crew F's second failure was due to some of the same performance deficiencies identified in the February evaluation.

Although some crews performed well, others were marginal, or required extensive remedial training. Crew performance across the different shifts appeared inconsistent at times. It was apparent that the licensee's corrective actions have not always been effective for all crews to maintain operator performance at expected levels so that previously identified performance deficiencies and

weaknesses did not reappear. The inspectors requested that the licensee provide any documented root causes and intended corrective actions regarding this issue. The inspectors also requested a copy of the final Requalification Training Cycle 96-20 Completion Report. The licensee's staff acknowledged this issue and the request for additional documentation.

The inspectors also observed Crew F's short-term remedial training process on December 4-8, 1996, and remediation examination on December 9, 1996. The inspectors determined that the short-term remedial training was intensive and effective. Crew F's improved performance supported the licensee's decision to return it to licensed shift duties as scheduled. However, the inspectors shared the lisensee's concerns that the licensed reactor operator who failed on individual competencies may not be competent to continue to perform license duties. The inspectors requested that the NRC be kept informed of the final remedial disposition of this operator before returning him to licensed duties, or of a decision to terminate the license. The licensee's staff acknowledged this request.

c. Conclusions

The remedial training program was adequate. Short-term remedial training was intensive and effective. However, recurring performance deficiencies in crew command, control, communication, and procedure usage skills indicate that the licensee's corrective actions have not been effective for all crews to maintain operator performance at expected levels so that previously identified performance deficiencies and weaknesses did not reappear.

O5.5 Review of Conformance with Operator License Conditions:

a. Inspection Scope (71001)

The inspectors evaluated the adequacy of the requalification program's compliance with Subpart C, Medical Requirements and 10 CFR 55.53, license conditions. The inspectors interviewed operators and training management, and examined the licensee's records to determine compliance for conditions to maintain an active operator license, reactivation of licenses, and medical fitness. Approximately 10 percent of the records were reviewed.

b. Observations and Findings

Operator license conditions were being accurately identified and tracked. License conditions were complied with in the sample selected.

c. Conclusions

The inspectors concluded that the licensee accurately tracked, maintained, and controlled the conditions of operator licenses and reactivation of inactive licenses in accordance with Subpart C, Medical Requirements, and 10 CFR 55.53, License Conditions.

O8 Miscellaneous Operations Issues

O8.1 Review of the Updated Final Safety Analysis Report Commitments

A recent discovery of a licensee operating their facility in a manner contrary to the Updated Final Safety Analysis Report description highlighted the need for a special focused review that compares plant practices, procedures, and/or parameters to the Updated Final Safety Analysis Report descriptions. While performing the inspection discussed in this report, the inspectors reviewed the applicable portions of the Updated Final Safety Analysis Report that related to the areas inspected. The inspectors verified that the Updated Final Safety Analysis Report section for licensed operator replacement and requalification training was consistent with the observed plant practices and procedures.

IV. Plant Support

F8 Miscellaneous Fire Protection Issues

F8.1 General Comments

The inspectors observed general plant housekeeping incident to administration of the in-plant job performance section of the operating test. The facility was reasonably clean, well lighted, and the floors were clear and free from debris. The operators were conscientious to note discrepancies and inform the main control room.

V. Management Meetings

X1 Exit Meeting Summary

The examiners presented the inspection results to members of the licensee management at the conclusion of the inspection on December 12, 1996. The licensee acknowledge the findings presented.

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

ATTACHMENT 1

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

R. Creason, Senior Operations Training Specialist
R. Gardner, Operations Manager
B. Houston, Licensing Manager
S. Jobe, Operations Training Programs Supervisor
M. Peckham, Plant Manager
D. Shallenberger, Lead Licensed Instructor, Requalification
A. Shiever, Nuclear Training Manager
S. Smallfoot, Shift Supervisor

NRC

C. Skinner, Resident Inspector

DOCUMENTS REVIEWED

Procedures Reviewed

Directive 54, "Management Overview of Training and Evaluation Activities," Revision 6
Directive 47, "Training Effectiveness Review Committee," Revision 8
Directive 7, "Management Field Observation," Revision 7
NTG 317, "Shift Crew Training Assessment," Revision 3
NTP 6.2, "Evaluation of Program Effectiveness," Revision 0
NTG 308, "Training Impact," Revision 04.00
NTG-328, "Operations Industry Events," Revision 01.00
NTP 1.1, "Training Work Request," Revision 0
SKL012-06-01, "Simulator Discrepancies and Design Changes," Lesson Plan
NTP 4.2, "Test Item and Examination Development," Revision 0
SOP 2.2.28, "Feedwater System Starup and Shutdown," Revision 58.1
CNS Operations Directive 2, "CNS Communication," Revision 12
NTG 323, "Development of Licensed Operator Requalification Evaluation Scenarios"
NTG 315, "Licensed Personnel Requalification Training"
NTP 5.3, "Student Remediation"
NTG 317, "Shift Crew Training Assessment"
NTP 6.2, "Evaluation of Program Effectiveness"
NTP 08, "Instructor Qualifications"

Condition Reports and Licensee Event Reports

CR 96-0478, dated May 9, 1996
CR 96-0766, dated September 3, 1996
CR 96-0849, dated September 25, 1996
CR 96-0765, dated August 30, 1996
CR 96-0356, dated April 13, 1996
CR 96-0553, dated June 11, 1996
CR 96-0180, dated February 28, 1996
CR 96-0832, dated September 20, 1996
LER 96-05, Revision 0

Memoranda and Other Reports

NTM96011, "Management Training Effectiveness Review Committee, May 29, June 5, June 13, 1996," from John H. Mueller, dated June 26, 1996
NTM96018, "Management Training Effectiveness Review Committee Meeting Minutes - July 29, 1996," from Philip D. Graham, dated October 17, 1996
"MTERC Meeting - September 25,1996," from Philip D. Graham, dated October 29, 1996
OPS96027, "First Quarter TERC Meeting - March 22, 1996," from R. L. Garner to J.T. Herron, dated April 12, 1996
OPS96034, "Second Quarter TERC Meeting - June 21, 1996," R. L. Gardner to J. T. Herron, dated July 15, 1996
NTG-315, Attachment B, "CNS Licensed Operator Requal Topic Survey," R. R. Carlson, dated August 19, 1996
NTG-315, Attachment B, "CNS Licensed Operator Requal Topic Survey," R. R. Carlson, dated August 19, 1996
NTD960628, "Operations and Operations Training Coordination Meeting," S. J. Jobe to D. W. VanDerKamp, dated September 11, 1996
NTD960708, "Operations and Operations Training Coordination Meeting," S. J. Jobe to D. W. VanDerKamp, dated November 1, 1996
NTD960308, "Requal End-of Cycle Completion Report: 96-12," A. R. Shiever to R. L. Gardner, dated June 6, 1996
NTD960684, "Requal End of Cycle Completion Report: 96-15," A. R. Shiever to R. L. Gardner," dated October 4, 1996
"CNS Directive 7 Field Observations - Monthly Report," R. A. Sessons to J. H. Mueller, dated July 12, 1996
NTD960709, "Student Feedback Report for September 1996," Ralph Drier to Training Manager, Training Supervisors & Training Leads," dated October 28, 1996
NTM96044, "Directive 54, Training Activity Observation Report - September & Third Quarter 1996," A. R. Shiever to NPG Managers, Supervisors and Training Lead Instructors, dated October 28, 1996

NTM96036, "Directive 54, Training Activity Observation Report - August 1996," A. R. Shiever to NPG Managers and Supervisor, Nuclear Training Lead Instructors, dated September 20, 1996
NTD960578, "Industry Events Survey Results and Recommendations," D. Shallenberger/L. Monroe to D. VanDerKamp, dated August 22, 1996

Other Documents

"Cooper Nuclear Station Westrain Assessment, week of June 12, 1995"
"1997 Licensed Operator/STE Requal Schedule," R00, dated November 7, 1996

ATTACHMENT 2

SIMULATION FACILITY REPORT

Facility Licensee: Cooper Nuclear Station

Facility Docket: 50-298

Operating Examinations Administered at: Cooper Nuclear Station,
Brownville, Nebraska

Operating Examinations Administered on: December 04-09, 1996

These observations do not constitute audit or inspection findings and are not, without further verification and review, indicative of noncompliance with 10 CFR 55.45(b). These observations do not affect NRC certification or approval of the simulation facility, other than to provide information which may be used in future evaluations. No licensee action is required in response to these observations.

Overall, the simulation facility displayed good fidelity.