

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 50-254; 50-265
License Nos: DPR-29; DPR-30

Report Nos: 50-254/97024(OL); 50-265/97024(OL)

Licensee: Commonwealth Edison Company (ComEd)

Facility: Quad Cities Nuclear Power Station, Units 1 and 2

Location: 22710 206th Avenue North
Cordova, IL 61242

Dates: November 24 - December 2, 1997

Inspectors: D. McNeil, Reactor Engineer
T. Jones, Reactor Engineer (in training)

Approved by: M. N. Leach, Chief, Operator Licensing Branch
Division of Reactor Safety

EXECUTIVE SUMMARY

Quad Cities Nuclear Power Station
NRC Inspection Reports 50-254/97024; 50-265/97024

This inspection report contains the findings and conclusions from the inspection of the licensed reactor operator (RO) and senior reactor operator (SRO) requalification training programs. The inspection included a review of training administrative procedures and operating examination material; observation and evaluation of operator performance and licensee evaluators during a requalification operating examination; an assessment of simulator fidelity; an evaluation of program controls to assure a systems approach to training; and a review of requalification training records. In addition, the inspectors observed a period of control room operations. The inspectors used the guidance in inspection procedures (IP) 71001 and 71707.

Operations

- Control room operators were found to be professional and businesslike in the execution of their operator responsibilities. (Section O1.1)

Inspection Results

- The licensed operator requalification program was providing operators with the skills necessary to properly fulfill their job functions. (Section O5.1)
- The examination materials used to examine the operators provided an effective evaluation tool for evaluating operator skills; however, the Category B written examination was considered weak. (Section O5.2)
- The licensed operator requalification program was being implemented in accordance with 10 CFR 55 requirements. (Sections O5.3, O5.4 & O5.6)

Report Details

I. Operations

O1 Conduct of Operations

O1.1 Control Room Observations

a. Inspection Scope (71707)

The inspectors observed routine control room activities and a shift turnover during the inspection week, performed a dual unit panel walk-down, reviewed control room logs, and questioned operators about plant and equipment status.

b. Observations and Findings

Control room operators were noted to be observing control room instrumentation at acceptable time intervals and were attentive to the watch station duties. Control room operator demeanor was professional at all times during the observed period. Access to the control room was being properly controlled by the Shift Technical Advisor, resulting in a quiet, businesslike environment in the control room.

c. Conclusions

The inspectors concluded that the control room operators were discharging their duties in an efficient, professional manner, with proper attention to the control room instruments and controls.

O5 Operator Training and Qualification

O5.1 Operating History

a. Inspection Scope (71001)

The inspectors reviewed the facility's operating history from 1995 through 1997 to determine if any operator errors occurred that could be attributed to ineffective or inadequate training.

b. Observations and Findings

The inspectors reviewed the NRC resident reports, the last Systematic Assessment of Licensee Performance (SALP) report for the Quad Cities Nuclear Power Station and selected Licensee Event Reports (LERs). Inspectors interviewed operators, training instructors and supervisory personnel. Several operator errors were noted during the reviews that resulted in unplanned reactor scrams or equipment starts.

c. Conclusions

The inspectors determined that the errors made during the inspection period were not attributable to inadequate training. The provided training may have been ineffective on a case-by-case basis, but the training program has provided operators with skills necessary to safely operate the Quad Cities Nuclear Power Station.

O5.2 Requalification Examinations

a. Inspection Scope (71001)

The inspectors reviewed the training department's sample plan used to develop reactor operator (RO) and senior reactor operator (SRO) examinations, the written examinations (Category A and B), and the annual operating tests (in-plant and control room job performance measures (JPMs) and dynamic simulator scenarios).

b. Observations and Findings

Inspectors reviewed the written examination administered during the inspection period and for two other requalification weeks. The category A written examinations (static simulator examinations) typically contained approximately 15 questions, while the Category B (classroom written examination) contained approximately 35 questions. The category A examinations made excellent use of the simulator. All questions in the Category A examination required use of the simulator to correctly answer the question. The questions were written at skill levels above simple memory and frequently required operators to use multiple pieces of information to obtain the proper answer. The category B examination had many questions that were considered by inspectors to be simple memory level questions. Inspectors were able to correctly answer a significant number of the questions on the examination administered during the inspection week without reference.

Inspectors reviewed JPMs and scenarios administered during the inspection period and for two other examination weeks (15 JPMs and 6 scenarios). The JPMs reviewed were safety significant tasks relevant to the licensed operator position. No single step JPMs were found in the reviewed tests. Administered JPMs were not repeated during subsequent examination weeks to prevent examination compromise. The dynamic simulator scenarios contained entries into technical specifications, required communications with outside organizations, equipment failures after entry into emergency operating procedures and transitions between flow paths in the emergency operating procedures.

c. Conclusions

The inspectors concluded that the category B examination was not of sufficient difficulty to challenge a marginal operator. However, because of the difficulty level of the category A examination, the aggregate examination (category A and category B) was a useful tool for evaluating mastery of licensed operator required skills and challenged

marginal operators. The Category B written examination should be enhanced to provide a more effective evaluation tool. The JPMs and dynamic simulator scenarios were written to the correct difficulty level to assess operator skills. The inspectors concluded that the requalification examination contained the necessary quantitative and qualitative attributes to provide an effective evaluation of operator skills. Examination security was maintained throughout the examination.

O5.3 Requalification Examination Administration Practices

a. Inspection Scope (71001)

The inspectors performed the following to assess the licensee's policies and practices regarding requalification examination administration, simulator fidelity, and examination security:

- Observed requalification operating examination administration
- Interviewed licensee personnel (operators, instructors, training supervisor, and evaluators)
- Observed simulator performance
- Reviewed the licensee's administrative procedures

b. Observations and Findings

Inspectors observed administration of approximately 15 JPMs (10 in the simulator, 5 in the plant) during the examination. Evaluators conducting JPMs provided initiating cues and prompts correctly while administering the JPM examination. Some minor suggestions for improving JPM administration were made by examiners to the Operations Training Supervisor. Grading of the JPMs was considered to be correct for all observed JPMs.

Inspectors observed two dynamic simulator scenarios administered to one operating crew. All senior reactor operators (SROs) on the crew were rotated to allow each SRO to be evaluated in a technical specification required position. Immediately after completion of each dynamic simulator scenario the evaluators met and discussed followup questions required to be asked of each crew member. All members of the evaluating team were candid about their observations and not restricted by the team leader or any other team members. Upon completion of the scenario set (two scenarios) the team met and discussed crew weaknesses, final grading, and any required remedial training. NRC inspectors agreed with the evaluator grading of the dynamic simulator examinations. Evaluators assigned to conduct the examinations were professional in their actions and demeanor at all times.

One simulator problem was noted during administration of the JPMs. An operator performing a RCIC surveillance noted that 1-1701-53, RCIC Test Bypass Valve, was

supposed to be opened a specified number of turns from the shut position. The indication the operator saw as the simulator operator was controlling 1-1701-53, was the valve stroking closed from the full open position vice being opened from the shut position. The valve stroke from the open position was questioned by the operator and it was determined that the simulator was modeled such that the valve had to stroke from the open position, resulting in an incorrect indication in the control room for positioning the valve. A simulator discrepancy was written and a software change made to allow the valve to stroke from the shut position, giving the expected control room indication during performance of the surveillance.

One JPM conducted during the inspection period was repeated during the dynamic scenario examination. This situation allows an operator to get double credit for knowing a single task, or penalizes an operator twice for not knowing the task. When this situation was identified to training department personnel, an immediate change was made to the quality control checklist used to govern creation of dynamic scenarios to include a check for duplicate tasks in the associated JPM examination.

c. Conclusions

The inspectors concluded that the licensee was implementing the Licensed Operator Requalification Training (LORT) program in accordance with program guidance and regulatory requirements stated in 10 CFR Part 55.59.

O5.4 Requalification Training Program Feedback System

a. Inspection Scope (71001)

The inspectors performed the following to assess the licensee's training program feedback system effectiveness:

- Reviewed operator and trainer comments on the feedback system
- Reviewed recorded changes to the requalification program
- Interviewed licensee personnel (operators, instructors, training supervisor)

b. Observations and Findings

Instructors documented individual and crew weaknesses during the requalification period and during the requalification examination. Through observations and interviews, inspectors determined that a mechanism for evaluating crew and individual weaknesses and providing that evaluation to the plant's training review committee was functioning properly. The training committee actively controlled the training program to address the weaknesses that were discovered during training cycle operator evaluations and requalification examinations. Other portions of the feedback system, such as immediate feedback to operator questions during classroom and simulator training sessions, were functioning properly.

c. Conclusion

The inspectors determined that the feedback portion of the Systematic Approach to Training (SAT) program was functioning properly.

O5.5 Remedial Training Program

a. Inspection Scope (71001)

The inspectors performed the following to assess the licensee's remedial training program effectiveness:

- Reviewed available remediation training plans

b. Observations and Findings

One remedial training program developed by training department personnel was reviewed by the inspectors. The program adequately addressed the operator's weaknesses discovered during the examination process.

The inspectors noted that the dynamic simulator examination evaluators used a "Pass with Remediation" grade. Several individual operators requiring remediation were passed during the inspection period. The inspectors interviewed evaluators concerning the remedial training programs that would be developed for each licensee. Evaluators stated that each remedial training program would be customized for each operator's demonstrated weaknesses. Since none of the programs were developed during the inspection period, these remedial training programs were not inspected.

c. Conclusions

Due to the limited amount of available material, no significant conclusions were made in this area.

O5.6 Conformance With Operator License Conditions

a. Inspection Scope (71001)

The inspectors reviewed records pertaining to maintaining active operator licenses to assess the facility and operator licensees' compliance with 10 CFR 55.53 license condition requirements:

b. Observations and Findings

The inspectors reviewed operator logs and the plant watchstander proficiency list and interviewed operators and training personnel to determine if an operator with an inactive operator license would be able to assume a tech spec required watch in the control room. For an operator to assume a watchstation, their name must be on the

watchstander list. This list is strictly controlled, preventing personnel with inactive licenses from assuming a control room watch.

Medical certifications for the operators were not reviewed; however, inspectors determined that operators were being given an annual physical examination that meets 10 CFR 55 medical requirements. The physical examination was given to satisfy the requirements of being a fire brigade member.

c. Conclusions

It was determined the licensed operator watchstanding requirements for active licenses were being implemented in accordance with 10 CFR Part 55 requirements.

V. Management Meetings

X1 Exit Meeting Summary

The inspectors met with licensee representatives on December 2, 1997, to discuss the scope and findings of the inspection. During the exit meeting, the inspectors discussed the processes reviewed by the inspectors during the conduct of this inspection and the likely content of the final inspection report. Licensee representatives did not identify any documents or processes as proprietary.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

D. Cook, Plant Manager
J. Easley, Requal Group Leader
L. Pearce, Site Vice President
R. Svaleson, Operations Manager
C. Symonds, Operations Training Superintendent
F. Tsakeres, Training Manager

IDNS

R. Ganser, IDNS Resident Inspector

NRC

L. Collins, Resident Inspector
C. Miller, Senior Resident Inspector
R. Walton, Resident Inspector

INSPECTION PROCEDURES USED

IP 71001 Licensed Operator Requalification Program Evaluation

ITEMS OPENED, CLOSED, AND DISCUSSED

None

SIMULATION FACILITY REPORT

Facility Licensee: Quad City Nuclear Power Station, Units 1 and 2

Facility Licensee Dockets No: 50-254, 50-265

Operating Tests Administered: November 24 - 26, 1997

This form is to be used only to report observations. 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 that may be used in future evaluations. No licensee action is required in response to these observations.

While conducting the simulator portion of the operating tests, the following items were observed (if none, so state):

<u>ITEM</u>	<u>DESCRIPTION</u>
1-1703-53, RCIC Test Bypass	The RCIC Test Bypass Valve strokes from the open position when required to stroke from the shut position during RCIC surveillances.