

ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.: 50-285
License No.: DPR-40
Report No.: 50-285/98-17
Licensee: Omaha Public Power District
Facility: Fort Calhoun Station
Location: Fort Calhoun Station FC-2-4 Adm., P.O. Box 399, Hwy. 75 - North of
Fort Calhoun, Nebraska
Dates: September 28 through October 2, 1998
Inspector(s): S. McCrory, Lead Inspector
W. Walker, Senior Resident Inspector
Approved By: John L. Pellet, Chief, Operations Branch
Attachment: Supplemental Information

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EXECUTIVE SUMMARY

Fort Calhoun Station NRC Inspection Report 50-285/98-17

This inspection assessed the licensed operator requalification program to determine whether the program incorporated appropriate requirements for both evaluating operators' mastery of training objectives and revising the program in accordance with 10 CFR 55.59(c). The licensed operator requalification program assessment included an evaluation of the program's controls to assure a systems approach to training and evaluation of operating crew performance during biennial 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 licensee evaluators' effectiveness in conducting examinations. Emphasis was given to the licensee's incorporation of event root cause analysis and performance feedback into the licensed operator requalification program.

Operations

- The licensee implemented a robust licensed operator requalification program that appropriately maintained and evaluated licensed operator proficiency in accordance with the requirements of 10 CFR Part 55. A key element in the program was excellent interaction between the training and operations organizations. The inspectors identified improved evaluation processes utilizing operations and training staff and frequent communications as good examples of this interaction (Sections O5.1, O5.2, O5.3, and O5.4)
- Facility management exhibited a strong commitment to improving licensed operators' human performance skills. This was evident by the number and nature of initiatives implemented after the August 1997 containment spray operability event. The inspectors observed licensed operator performance in the simulator and in the control room that confirmed that licensed operators were performing with increasing consistency to higher management expectations (Sections O1.1, O4.1, and O5.3).

Maintenance

- The operators performed the surveillance activity observed by the inspectors in a controlled manner that conformed to management expectations and in accordance with procedures. Operators demonstrated excellent human performance skills during performance of the surveillance (Section M1.2).

Report Details

I. Operations

O1 Conduct of Operations

O1.1 Control Room Observations

a. Inspection Scope (71001)

The inspectors observed control room activities during normal operations and a surveillance test (Section M1.2).

b. Observations and Findings

The operators conducted shift turnover as described in Section O5.3 below. During the surveillance, dedicated supervisory oversight was established per management expectations. The operators routinely performed self-verification, peer checks, and three-leg communications to the higher management expectations established over the last several months. The senior resident inspector confirmed that the observations made in the control room during the inspection week were consistent with those made by the resident inspector's staff in recent months.

c. Conclusions

The inspectors concluded that operator performance regularly met management expectations and that there was consistency in operator performance among shift and non-shift operators both in the control room and the simulator during the requalification examinations (Section O4.1).

O4 Operator Knowledge and Performance

O4.1 Operator Performance on Annual Requalification Examinations

a. Inspection Scope (71001)

The inspectors observed the performance of a crew of shift licensed operators and a crew of non-shift licensed operators during the dynamic simulator and job performance measure portions of the biennial requalification examination. The crews in the dynamic simulator consisted of two controls operators, two senior operators, and one shift technical advisor.

b. Observations and Findings

Each licensed operator was administered five job performance measures and participated in at least two dynamic simulator scenarios. Crews with more than three operators with senior licenses participated in additional scenarios to permit the evaluation of all senior operators in a supervisory position.

During the dynamic simulator and job performance measure portions of the examination, the inspectors observed the following generic behaviors among the operators (shift and non-shift):

- Operators routinely exhibited formal three-legged communication and applied self-verification and peer checking techniques consistent with management expectations.
- Operators routinely referred to procedures for alarm response, abnormal operations, and normal operations. Senior operators displayed good familiarity and usage of the emergency operating procedures and Technical Specifications.
- Operators exhibited good systems knowledge and plant awareness.

The facility licensee evaluators determined that all examinees passed the dynamic simulator portion of the operating examination. The inspectors agreed with that evaluation.

c. Conclusions

The operators performed well in all aspects of the operating test and displayed human performance skills consistent with management expectations.

O5 Operator Training and Qualification

O5.1 Requalification Examination Quality

a. Inspection Scope (71001)

The inspectors reviewed the biennial requalification examinations administered during the week of the inspection, including job performance measures, dynamic simulator examinations, and the written examination. The inspectors evaluated general quality, construction, and difficulty level.

b. Observations and Findings

The test items were well written. Written examination questions and job performance measures were developed to the same standards as found in NUREG-1021, "Operator Licensing Examination Standards," Interim Revision 8. The inspectors observed few construction weaknesses and none of those challenged examination validity.

The dynamic scenarios were comprehensive and challenging. On average, the scenarios contained 7-8 events with generally 2-3 occurring after a reactor trip following the major transient. The scenarios challenged operators by requiring extensive operator action to mitigate the simulated abnormal plant conditions and required the senior operator to establish priorities and provide crew direction and oversight. The scenarios contained crew critical tasks that were well defined and appropriate.

c. Conclusions

The licensee developed requalification examinations that were well constructed, challenging, and discriminated at the appropriate level.

05.2 Evaluator Performance

a. Inspection Scope (71001)

The inspectors observed the administration of portions of the operating test of the requalification examinations to determine the evaluators' abilities to administer an examination and assess adequate performance through measurable criteria.

b. Observations and Findings

The inspectors observed six licensed operator requalification training evaluator and two operations management evaluators. The evaluators participated 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.

The evaluators conducted the examinations professionally and thoroughly documented observations for later evaluation.

The evaluators were candid and thorough in assessing operator performance. When they observed performance that did not fully meet facility licensee expectations, they appropriately differentiated between the regulatory level of performance and the higher expectations of facility management. The evaluators from operations management participated as active members of the evaluation team and contributed equally with the other evaluators during the crew assessment process.

c. Conclusions

The facility evaluators competently assessed operator performance against regulatory standards and higher facility standards while correctly distinguishing between the two.

05.3 Review of Training Feedback Process and Effectiveness

a. Inspection Scope (71001)

The inspectors reviewed several facility licensee initiatives that had been incorporated into the requalification training program as a result of event assessments and plant modifications. The inspectors focused on the results of the root cause analysis following a containment spray operability event in August 1997.

b. Observations and Findings

The inspectors reviewed 22 Training Program Configuration Management Document Tracking record items related to selected Licensee Event Reports and plant modifications that occurred over the last 18 months. The inspectors also interviewed key personnel in both the training and operations organizations to assess the process for identifying training needs in a routine manner. The facility licensee had established a very low threshold for reviewing events, plant modifications, and procedure changes to identify training needs. Various committees comprised of a broad spectrum of functional areas and technical disciplines had been established to review these and other inputs, such as "Score Card" results to assess training effectiveness and emergent training needs. The personnel interviewed from both the training and operations organizations demonstrated a thorough understanding of how this process functioned as well as strong support for the process.

Following the containment spray operability event in August 1997 (Inspection Report 50-285/97-17), the facility licensee instituted a number of activities to improve the human performance skills of licensed operators. The activities focused on surveillance oversight, shift turnover, verbal communications, self-verification, and peer checking.

The facility licensee established a requirement for dedicated oversight during the performance of surveillances in the control room. Senior reactor operators and shift technical advisors performed this function. Usually the on-shift shift technical advisor provided the oversight. However, another qualified individual could be designated to perform the function if the shift technical advisor was not available. The inspectors observed the performance of a surveillance in the control room and noted that this function was performed to management expectations.

The facility licensee's shift turnover activity was enhanced through the adoption of a somewhat more formal process. The process directed the participation of all organizations supporting the operations crew as a part of the normal site shift complement. The process required that all individuals who were new to the crew or fill-ins for regular crew members be identified to the rest of the crew at turnover. The changes in the shift turnover process included the use of an "Out-of-Normal Switch Position/Annunciator in Alarm List" to highlight unusual operational conditions in the control room at the time of shift turnover. Finally, the process required the shift manager to remain in the controls area of the control room to monitor individual shift turnover and to provide plant monitoring backup. On-coming shift operators were required to independently review the control room controls and indications prior to obtaining an individual turnover from the off-going counterpart. The inspectors observed a shift turnover and noted that management expectations were being met. The senior resident inspector on-site confirmed that the observations made during the inspection were consistent with those that had been made over the past several months.

The facility licensee implemented a "Score Card" program that facilitated focused evaluation of various aspects of operator performance including communication, self-verification, and peer checking. The "Score Cards" were observation aids that allowed an observer to evaluate specific on-shift operator performance against management expectations to provide immediate feedback to operators and input to the

process for training needs analysis of the requalification program. Additionally, the facility licensee created "focus instructor" and "focus manager" temporary positions to observe performance in the simulator during formal training to provide immediate feedback and on-the-spot correction for performance that did not meet management expectations. The facility licensee was in the process of creating a permanent position to take over the responsibilities of the "focus" positions. The position was to be staffed by a member of the operations organization whose work space would be co-located in the training facility. The incumbent would act as a liaison between operations and training to continually reinforce operations ownership of management performance expectations.

c. Conclusions

The facility licensee displayed a strong commitment to improving operator performance through the broad initiatives implemented over the past year. The inspectors concluded that on-going involvement of facility licensee management in the "Focus" activities, robust interaction between training and operations, and the long-term commitment of resources to a liaison position further confirmed the facility licensee's commitment.

O5.1 Maintenance of Conditions of Licenses (71001)

As a result of misinterpretation of the regulatory requirements for maintenance of an active operator license by some other facility licensees, the inspectors review selected records for non-shift licensed operators whose licenses were indicated as active. The inspectors also reviewed the facility licensee's administrative requirements and interviewed operations personnel. During one of the control room observations, the inspector asked the on-shift shift manager to demonstrate his ability to determine whether the license of a particular operator was active or not. The shift manager promptly provided the inspector with the list of "Operators Authorized to Manipulate the Controls of Fort Calhoun Station" that was maintained in the shift manager's office. The shift manager was also conversant in the requirements for maintenance of an active license. All of these sources confirmed that the requirements of 10 CFR 55.53(e) were being properly applied to the maintenance of active licenses of non-shift licensed operators.

O8 Miscellaneous Operations Issues (92700)

O8.1 (Closed) Licensee Event Report 50-285/97-12: inadvertent isolation of all containment spray due to operator error.

On August 21, 1997, with the Fort Calhoun Station operating at 100 percent power, a licensed operator unknowingly rendered all containment spray inoperable for approximately 12 hours. The licensed operator was performing a Technical Specification required quarterly surveillance and post-maintenance test. During performance of the test, the licensed operator misunderstood the directions of the test procedure and took hand control switches for the two containment spray valves to the "Override" position. This position prevents these valves from automatically opening as required by Technical Specifications.

This issue was addressed during the review and closure of Violation 50-285/9717-01. No further actions are required.

- O8.2 (Closed) Violation 50-285/9717-01: failure to follow the procedure for placing the containment valves and containment spray valve test switches in the required position.

The inspectors verified the corrective actions described in the licensee's response letter dated November 21, 1997, were implemented. No similar problems were identified.

- O8.3 (Closed) Violation 50-285/9717-02: failure to comply with Technical Specification 2.0.1 while the containment spray system was inoperable.

The inspectors verified the corrective actions described in the licensee's response letter dated November 21, 1997, were implemented. No similar problems were identified.

- O8.4 (Closed) Violation 50-285/97-03: failure to follow the procedure for ensuring the completeness and accuracy of the official control room log.

The inspectors verified the corrective actions described in the licensee's response letter dated November 21, 1997, were implemented. No similar problems were identified.

- O8.5 (Closed) Violation 50-285/97-04: failure to follow the procedure for ensuring an adequate shift turnover occurred.

The inspectors verified the corrective actions described in the licensee's response letter dated November 21, 1997, were implemented. No similar problems were identified.

II. Maintenance

M1 Conduct of Maintenance

M1.2 Surveillance Tests

a. Inspection Scope (61726)

The inspectors observed operations personnel perform portions of Surveillance Test, OP-ST-CEA-0004, "Secondary CEA Position Indication System Test," Revision 11.

b. Observations and Findings

On October 1, 1998, the inspectors attended the pre-job briefing prior to performance of the surveillance test for secondary CEA position indication system test. During the pre-job briefing the inspectors observed that all personnel participating in the surveillance were present. The licensed operator in control of the surveillance test provided the pre-job briefing and referred to a pre-job briefing check list to ensure all necessary precautions and instructions for performance of the surveillance were discussed.

During performance of the test the instrumentation and control technicians exhibited detailed technical knowledge of the test equipment and effectively performed the surveillance. Operations personnel used three-legged communications and effectively performed the surveillance.

The system engineer was also present during the surveillance activity. During one portion of the surveillance an unexpected CEDM/MIMIC Bus Ground alarm was received and the alarm cleared immediately. The surveillance was stopped and discussions were held between operations personnel and the system engineer concerning continuing the surveillance test. The Alarm Response Procedure was referenced and a decision was made to continue the surveillance. A condition report was written to identify the occurrence of the unexpected alarm.

c. Conclusions

The surveillance activity observed by the inspector was completed in a controlled manner and in accordance with procedures. Excellent three-legged communications were noted during performance of the surveillance.

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 October 2, 1998. The licensee acknowledged the findings presented.

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

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

D. Dryden, Station Licensing Engineer
S. Gambhir, Division Manager, Engineering and Operations Support
D. Spires, Manager, Quality Assurance and Quality Control
M. Frans, Manager, Nuclear Licensing
J. Tills, Assistant Plant Manager
G. Guliani, Supervisor, Operations Training
R. Westcott, Manager, Training
J. Solymossy, Manager, FCS
G. Gates, Vice President
R. Phelps, Acting Division Manager, Nuclear Engineering
M. Tesar, Acting Division Manager, Nuclear Support Services
K. McCormick, Manager, Nuclear Procurement Services
R. Ridenoure, Manager, Operations
J. Chase, Division Manager Nuclear Assessments

INSPECTION PROCEDURES USED

IP 71001: Licensed Operator Requalification
IP 92700: Onsite Followup of Written Reports of Nonroutine Events at Power Reactor Facilities
IP 61726 Surveillance Observations

ITEMS OPENED, CLOSED, AND DISCUSSED

Closed

50-285/97-12	LER	Inadvertent isolation of all containment spray due to operator error. (Section O8.1)
50-285/9717-01	VIO	Failure to follow the procedure for placing the containment valves and containment spray valve test switches in the required position. (Section O8.2)
50-285/9717-02	VIO	Failure to comply with Technical Specification 2.0.1 while the containment spray system was inoperable. (Section O8.3)
50-285/9717-03	VIO	Failure to follow the procedure for ensuring the completeness and accuracy of the official control room log. (Section O8.4)
50-285/9717-04	VIO	Failure to follow the procedure for ensuring an adequate shift turnover occurred. (Section O8.5)

LIST OF DOCUMENTS REVIEWED

Procedures

OPD-3-11 "Crew Assignments and Crew Makeup," Revision 4

OPD-5-13 "Training Ownership and Performance," Revision 6

Licensed Operator Requalification Training Program Master Plan, Section 2, Revision 24

Licensed Operator Requalification Training Program Master Plan, Section 6, Revision 12

Other

Licensed Operator Requalification written and operating examinations for cycle 98-6, week 2.

Licensed Operator Requalification Training Curriculums for 95/96 and 97/98.

Operations Training Strategic Training Agreement, dated 8/26/98.

Training Program Configuration Management Document Tracking record items:

942658	971409	972497	980203	980299	980559
960519	971473	980141	980226	980304	981287
961484	971814	980201	980227	980305	
971366	972371	980202	980228	980337	

Fort Calhoun Unit-1 - Operator Daily Duty Record for 5/7-8/98, 5/16/98, 6/14-16/98