



UNITED STATES
 NUCLEAR REGULATORY COMMISSION
 REGION II
 101 MARIETTA STREET, N.W.
 ATLANTA, GEORGIA 30323

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Report Nos.: 50-269/87-43, 50-270/87-43, and 50-287/87-43

Licensee: Duke Power Company
 422 South Church Street
 Charlotte, NC 28242

Docket Nos.: 50-269, 50-270 and 50-287 License Nos.: DPR-38, DPR-47,
 and DPR-55

Facility Name: Oconee Nuclear Station

Inspection Conducted: November 10-12, 1987

Inspector: E. D. Testa 11/24/87
 E. D. Testa Date Signed

Accompanying Personnel: T. R. Decker
 W. M. Sartor
 J. L. Kreh
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Approved by: J R Decker 11/25/87
 T. R. Decker, Section Chief Date Signed
 Emergency Preparedness Section
 Division of Radiation Safety and Safeguards

SUMMARY

Scope: This routine, announced inspection was in the area of the annual emergency preparedness exercise.

Results: No violations or deviations were identified; however, one exercise weakness was identified addressing the failure to maintain an adequate Control Room log.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *M. Tuckman, Station Manager
- *F. Owens, Compliance
- *D. Davidson, Compliance
- *P. Kusek, Information Center
- *D. Berkshire, Health Physicist
- *D. Simpson, Compliance
- *R. Leonard, Compliance
- *C. Jennings, Site Emergency Planner
- *D. Sweigart, Operations
- *J. McIntosh, Superintendent, Station Services
- *C. Yongue, Health Physicist
- *R. Harris, System Emergency Planner
- T. Barr, Training Manager
- W. Roach, Administrative Supervisor
- *W. McAlister, I&E Support Engineer

Other licensee employees contacted included engineers, technicians, operators, mechanics, security force members, and office personnel.

NRC Resident Inspectors

- J. Bryant
- *P. Skinner

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on November 12, 1987, with those persons indicated in Paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings. No dissenting comments were received from the licensee. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspector during this inspection.

3. Licensee Action on Previous Enforcement Matters

No previous emergency preparedness enforcement matters remained outstanding.

4. Exercise Scenario (82301)

The scenario for the emergency exercise was reviewed to assure that provisions were made to test the integrated capability and a major portion

of the basic elements defined in the licensee's emergency plan and organization pursuant to 10 CFR 50.47(b)(14), Paragraph IV.F of Appendix E to 10 CFR 50, and specific criteria defined in Section II.N of NUREG-0654.

The scenario was reviewed in advance of the scheduled exercise date. No major scenario problems were identified.

The scenario developed for this small scale exercise was detailed, and exercised the onsite emergency organization. The exercise was conducted from approximately 7:30 am to 11:30 am on November 11, 1987. The scenario involved Unit 1 operating with approximately 0.12% failed fuel. The unit experienced a loss of vacuum and the main turbine and main feedwater pumps both tripped on low vacuum. The reactor tripped when the main turbine and main feedwater pumps tripped. Cold emergency feedwater supplying the "1B" steam generator caused a steam generator tube leak of approximately 450 gpm. Rapid main steam pressure increase on the trip caused a large body to bonnet leak on the "1B" main steam line atmospheric dump block valve. Flow paths from the reactor coolant system to the environment and Turbine Building were thus established.

The licensee made a large commitment to training and personnel through the use of controllers, evaluators, and required personnel participating in the exercise. The exercise used the onsite simulator as the Unit 1 Control Room. Its use provided a unique opportunity to evaluate player reaction to dynamically changing plant conditions. Players were able to demonstrate those actions that would be taken to cope with an emergency in the plant. Use of the simulator provided a high degree of realism for this exercise. The controllers provided adequate guidance throughout the exercise; however, some prompting was noted by the inspector. This item is discussed in detail in Paragraph 10, below.

No violations or deviations were identified.

5. Assignment of Responsibility (82301)

This area was observed to assure that primary responsibilities for emergency response by the licensee were specifically established, and that adequate staff was available to respond to an emergency pursuant to 10 CFR 50.47(b)(1), Paragraph IV.A of Appendix E to 10 CFR 50, and specific criteria defined in Section II.A of NUREG-0654.

The inspectors observed that specific emergency assignments were made for the licensee's onsite emergency response organization, and that adequate staff was available to respond to the simulated emergency. The initial response organization was augmented by designated licensee representatives; however, because of the scenario scope and conditions, long term or continuous staffing of the emergency response organization was not required. Discussions with licensee representatives indicated that sufficient technical staff was available to provide for continuous staffing of the augmented emergency organization, if needed.

The inspector also observed activation, staffing, and operation of the emergency organization in the Technical Support Center (TSC) and Operations Support Center (OSC). At each response center, the required staffing and assignment of responsibility were consistent with the licensee's approved procedures.

No violations or deviations were identified.

6. Onsite Emergency Organization (82301)

The licensee's onsite emergency organization was observed to assure that the following requirements were implemented pursuant to 10 CFR 50.47(b)(2), Paragraph IV.A of Appendix E to 10 CFR 50, and specific criteria promulgated in Section II.B of NUREG-0654: (1) responsibilities for emergency response were unambiguously defined; (2) adequate staffing was provided to assure initial facility accident response in key functional areas at all times; (3) onsite and offsite support organizational interactions were specified.

The inspectors observed that the initial onsite emergency organization was adequately defined, and that staff was available to fill key functional positions within the organization. Augmentation of the initial emergency response organization was accomplished through mobilization of additional day-shift personnel. The on-duty simulator Shift Supervisor assumed the duties of Emergency Coordinator promptly upon initiation of the simulated emergency, and directed the response until formally relieved by the Station Manager.

No violations or deviations were identified.

7. Emergency Classification System (82301)

This area was observed to assure that a standard emergency classification and action level scheme was in use by the nuclear facility licensee pursuant to 10 CFR 50.47(b)(4), Paragraph IV.C of Appendix E to 10 CFR 50, and specific criteria promulgated in Section I.D of NUREG-0654.

An Emergency Action Level matrix was used to promptly identify and properly classify the emergency and escalate to more severe emergency classifications as the simulated accident sequence progressed. Licensee actions in this area were timely and effective.

Observations confirmed that the emergency classification system was effectively used and was consistent with the Radiological Emergency Plan and Implementing Procedures. The system appeared to be adequate for classification of the simulated accident sequences. The emergency procedures provided for initial and continuing mitigating actions to be implemented throughout the exercise.

No violations or deviations were identified.

8. Notification Methods and Procedures (82301)

This area was observed to assure that procedures were established for notification of State and local response organizations and emergency personnel by the licensee, and that the content of initial and followup messages to response organizations were established. This area was further observed to assure that means to provide early notification to the populace within the plume exposure pathway were established pursuant to 10 CFR 50.47(b)(5), Paragraph IV.D of Appendix E to 10 CFR 50, and specific criteria defined in Section II.E of NUREG-0654.

An inspector observed that notification methods and procedures were established and available for use in providing information regarding the simulated emergency conditions to Federal, State, and local response organizations, and to alert the licensee's augmented emergency response organization. Notification of the State of South Carolina, and local offsite organizations was completed within 15 minutes following declaration of each emergency classification.

No violations or deviations were identified.

9. Emergency Communications (82301)

This area was observed to assure that provisions existed for prompt communications among principal response organizations and emergency personnel pursuant to 10 CFR 50.47(b)(6), Paragraph IV.E of Appendix E to 10 CFR 50, and specific criteria promulgated in Section II.F of NUREG-0654.

The inspector observed communications within and between the licensee's emergency response facilities (Control Room Simulator, TSC, and OSC), and between the offsite environmental monitoring teams and the TSC.

The inspector observed that radio communications with offsite environmental monitoring field teams needs to be improved. Specifically it was observed that offsite environmental monitoring field teams at times were located in "dead spots" and could not communicate reliably with the TSC. One radio used by a sampling team had to be "hot wired" in order to make the radio set function. The inspector also observed that the predesignated sample points were not used to direct field teams to sample location or report field team positions.

Inspector Followup Item (50-269/87-43-01, 50-270/87-43-01, 50-287/87-43-01) Failure to demonstrate adequate radio communications with offsite radiological environmental field teams.

No violations or deviations were identified.

10. Emergency Facilities and Equipment (82301)

This area was observed to assure that adequate emergency facilities and equipment to support an emergency response were provided and maintained pursuant to 10 CFR 50.47(b)(8), Paragraph IV.E of Appendix E to 10 CFR 50, and specific criteria promulgated in Section II.H of NUREG-0654.

The inspectors observed activation, staffing, and operation of the emergency response facilities and observed the use of equipment at the facilities. Emergency response facilities used by the licensee during the exercise included the Simulator Control Room (CR), Operations Support Center, and the Technical Support Center.

- a. Simulator Control Room - The inspector observed that following review and analysis of the sequence of accident events, Simulator Control Room operations personnel acted promptly to initiate required responses to the simulated emergency. Emergency procedures were readily available, routinely followed, and factored into accident assessment and mitigation exercises. It was observed, however, that at times controllers were prompting the players by providing more information than the situation required. Several examples demonstrating this observation included: (1) the controller reminding the Operating Engineer that he needed a report status of IMS-98 as soon as possible, (2) when asked by a player if the simulator alarm on R-40 was valid with the "B" steam generator isolated the controller responded by saying the alarm was not valid, you have isolated the correct generator, (3) when asked by a player which side of IMS-98 was ruptured he was told by a controller that the hole was on the feedpump side.

Inspector Followup Item (50-269/87-43-02, 50-270/87-43-02, 50-287/87-43-02) Exercise prompting by controllers in the Simulator Control Room.

The location of the simulator limited the number of personnel and precluded overcrowding and maintained an ambient noise level required for the orderly conduct of operating under emergency conditions.

It was observed by an inspector that a Shift Supervisor's bound log was available and a limited entry of initial Unit 1 operating information was made. No other sequence of events or Unit operating data were entered following exercise initiation. Based on the observation above, the following item is considered to be an exercise weakness.

Exercise Weakness (50-269/87-43-03, 50-270/87-43-03, 50-287/87-43-03) Failure to maintain an adequate control room log book.

Simulator Control Room personnel demonstrated an understanding of the emergency classification system and the proficient use of specific

procedures to determine and declare the proper emergency classification.

- b. Technical Support Center - The TSC was activated and promptly staffed following notification by the Shift Supervisor of the simulated emergency conditions leading to the Alert classification. The facility staff appeared to be cognizant of their emergency duties, authorities, and responsibilities. Required operations at the facility proceeded in an orderly manner. The facility was provided with adequate equipment for support of the assigned staff.

Inspection disclosed the following additional findings, namely: (1) assumption of duties by the Emergency Coordinator was definite and firm; (2) briefings of the TSC staff were frequent and consistent with changes in plant status and related emergency conditions; (3) accountability was implemented within the accepted time regime and was consistent with the scenario scope.

- c. Operations Support Center - The OSC was promptly staffed following activation of the emergency plan by the Emergency Coordinator. The inspector observed that teams were assembled, briefed, and dispatched. The OSC Supervisor appeared to be cognizant of his duties and responsibilities.

Events postulated by the scenario would have contaminated a significant portion of the Turbine Deck. Emergency Response personnel manning the TSC and OSC traversed this area and some were designated as contaminated. The inspector noted that for at least 20 minutes, the step-off pad at the south entrance to the Unit-3 Control Room (entrance to the OSC) was in place with no indication that it was being used for drill purposes. Also, personnel periodically entered and exited the TSC without regard for frisking. The inspector observed that exercise designated contaminated shoe covers were worn and carried through the TSC and placed on a counter top near the frisker in the facility.

Inspector Followup Item (50-269/87-43-04, 50-270/87-43-04, 50-287/87-43-04) Radiological contamination control at the Operations Support Center and Technical Support Center.

No violations or deviations were identified.

11. Accident Assessment (82301)

This area was observed to assure that adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition were in use as required by 10 CFR 50.47(b)(1), Paragraph IV.B of Appendix E to 10 CFR 50, and specific criteria promulgated in Section II.I of NUREG-0654.

The accident assessment program included an engineering assessment of plant status, and an assessment of radiological hazards to onsite and offsite personnel resulting from the simulated accident. During the exercise, the engineering accident assessment team functioned effectively in analyzing plant status to provide recommendations to the Emergency Coordinator regarding mitigating actions required to reduce damage to plant systems and equipment, prevention of releases of radioactive materials, and termination of the emergency condition.

Radiological assessment activities involved several groups. An inplant group was effective in estimating the radiological impact within the plant based upon inplant monitoring and onsite measurements. Offsite radiological environmental monitoring teams were dispatched to determine the level of radioactivity in those areas within the influence of the plume.

No violations or deviations were identified.

12. Exercise Critique (82301)

The licensee's critique of the emergency exercise was observed to determine that shortcomings identified as part of the exercise was brought to the attention of management and documented for corrective action pursuant to 10 CFR 50.47(b)(14), Paragraph IV.F of Appendix E, 10 CFR 50, and the specific criteria promulgated in NUREG-0654, Section II.N.

A formal critique was held on November 12, 1987, with exercise controllers and observers, licensee management, and NRC representatives. Required improvements identified during the exercise and plans for corrective action were discussed. Licensee action on such findings will be reviewed during subsequent inspections. The licensee's critique was detailed, and addressed both substantive deficiencies and indicated improvement items. The conduct and content of the critique were consistent with regulatory requirements and guidance cited above.

No violations or deviations were identified.

Oconee Nuclear Station
1987 Exercise

I. SCOPE AND OBJECTIVES

A. Scope

The 1987 Oconee Nuclear Station exercise is designed to meet the exercise requirements of 10CFR50, Appendix E, Section IV.F. The Duke Power Technical Support Center, Operational Support Center, and control room will participate fully. The Duke Power Crisis Management Center and the state and counties will not participate.

On November 11, 1987, a simulated radiological accident will be held to test the integrated capabilities and a major portion of the basic elements within the emergency plans and organizations. This exercise will simulate emergency conditions which would require response by the on-site emergency organizations. Exercise objectives are provided in Section I.B.

B. Exercise Objectives

1. Demonstrate the ability to declare emergency classification in accordance with procedures.
2. Demonstrate the ability to notify the State and the counties within 15 minutes after declaring an emergency or after changing the emergency classification.
3. Demonstrate the ability to alert, notify, and staff the TSC and OSC facilities after declaring an Alert or higher emergency class.
4. Demonstrate the ability to notify NRC not later than 1 hour after declaring one of the emergency classes.
5. Demonstrate assembly of station personnel within 30 minutes in a simulated emergency and provide accountability for any not present at the assembly locations.
6. Demonstrate access control measures to the plant site.
7. Test communications equipment among on-site emergency facilities including plant extensions, intercoms, and the on-site radio system.
8. Test off-site communications equipment to the county and state warning points and to NRC including the Selective Signaling System, outside telephone lines, and the NRC Emergency Notification System.
9. Test the adequacy and operability of emergency equipment/supplies.

10. Demonstrate precise and clear transfer of responsibility from the Shift Supervisor in the Control Room to the Emergency Coordinator in the TSC.
11. Demonstrate proper use of the message format and authentication methodology for messages transmitted to states and counties.
12. Demonstrate the ability to provide accurate information to the news media in a timely manner and to provide effective rumor control according to the Crisis Management Implementing Procedures.
13. Demonstrate the ability to provide data to the TSC and OSC in accordance with station procedures.
14. Evaluate the adequacy of the following assessment tools:
 1. Drawings
 2. Data Display Boards
 3. Maps
15. Demonstrate the ability to continuously monitor and control emergency worker exposure.
16. Demonstrate the ability to determine on-site radiation levels and airborne radioiodine concentrations.
17. Demonstrate the ability to develop off-site dose projections in accordance with procedures.
18. Demonstrate adequate radio communications between the off-site monitoring teams and the TSC.
19. Demonstrate the ability to locate a simulated, radioactive plume and to measure the off-site radiation levels.
20. Demonstrate the ability to provide timely and appropriate protective action recommendations to off-site officials in accordance with station procedures.
21. Demonstrate the ability to assess the incident and provide mitigation strategies in accordance with station procedures.