

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

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Report Nos.: 50-413/89-12 and 50-414/89-14 Licensee: Duke Power Company 422 South Church Street Charlotte, NC 28242 Docket Nos.: 50-413 and 50-414 License Nos.: NPF-35 and NPF-52 Facility Name: Catawba 1 and 2 Inspection Conducted: April 25-28, 1989 Inspector: Cunningham Date Signed L. Accompanying Personnel: B. R. Bonser C. R. Van Niel . M. Will Approved by: 05-23-89 W. H. Rankin, Chief Date Signed Emergency Preparedness Section Emergency Preparedness and Radiological Protection Branch Division of Radiation Safety and Safeguards

SUMMARY

Scope

This routine, announced inspection involved observation and evaluation of the annual radiological emergency response exercise. The limited participation exercise commenced at 7:15 a.m. on April 27, 1989. Federal, State and county participation was limited to receipt and acknowledgement of emergency notifications throughout the exercise. The exercise was terminated at 4:00 p.m. on the above referenced date. The medical and fire drills were performed on April 25 and 26, 1989, respectively. Offsite local support and resources were limited to performance of the medical emergency and fire drills. The states of putstanding emergency preparedness open items was reviewed.

Results

No violations or deviations were identified. The exercise was fully successful, and the licensee demonstrated the capability to effectively assess, control, and mitigate the postulated casualty presented in the exercise scenario. Additionally, onsite and offsite protective action recommendations were promptly made and determined to be consistent with the Emergency Plan,

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respective procedures, and prevailing radiological conditions. Exercise objectives were fully implemented. One concern was identified and tracked as an inspector followup item, namely: provision of specific guidance for review, approval, and implementation of nonprocedural emergency actions during plant emergencies (Paragraph 8.b)

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*T. Crawford, Integrated Scheduling Superintendent
*S. Deskevick, Design Engineer
*J. Forbes, Technical Services Superintendent
*M. Garrick, Safety Engineer
*R. Glover, Compliance Manager
*R. Harris, System Emergency Planner
*J. Hill, Shift Supervisor
*E. Kuhr, Corporate Emergency Planner (CNS)
*D. Lee, Health Physicist
*W. McCollough, Mechanical Maintenance Manager
*W. McRee, Corporate Emergency Planner
*G. Mitchell, Nuclear Production Specialist
*T. Owen, Station Manager

*D. Simpson, Station Emergency Planner

NRC Resident Inspector

*W. Orders

*Attended exit interview

2. Exercise Scenario (82302)

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 guidance promulgated in Section II.N of NUREG-0654.

The scenario was reviewed in advance of the exercise and discussed in detail with licensee representatives on several occasions. While no major scenaric problems were identified, several inconsistencies became apparent during the exercise. The inconsistencies, however, failed to detract from the overall performance of the licensee's emergency organization.

The scenario developed for this exercise was detailed, and fully exercised the onsite emergency organization. The scenario provided sufficient information to the States, counties, local governments and Federal agencies consistent with the scope of their participation in the exercise.

The licensee demonstrated a significant commitment to training and personnel through use of controllers, evaluators, and specialists

participating in the exercise. The controllers provided adequate guidance throughout the exercise. Neither prompting nor undue interaction between controllers and players was observed.

The scenarios developed for the medical emergency and fire drills were reviewed in detail, and determined to be adequate. Both drills fully integrated the required response activities of licensee and offsite support groups including effective management of combined resources, where applicable. The scope and objectives of the subject drills were met.

No violations or deviations were identified.

3. 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 guidance promulgated in Section II.A of NUREG-0654.

The inspector observed that specific emergency assignments were made for the licensee's 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 and a detailed review of the site Radiological Emergency Plan (REP) indicated that a sufficient number of trained technical personnel were available for continuous staffing of the 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). Required staffing and specific assignment of responsibility at these facilities were consistent with the Radiological Emergency Plan and respective implementing procedures. The Crisis Management Center (CMC) and Emergency News Center (ENC) were not activated during this exercise.

No violations or deviations were identified.

4. 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 guidance promulgated in Section II.B of MUREG-0654: (1) unambiguous definition of responsibilities for emergency response; (2) provision of adequate staffing to assure initial facility accident response in key functional areas at all times; and (3) specification of onsite and offsite support organizational interactions. The inspector 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 off-shift and available on-shift personnel. The on-duty Shift Supervisor assumed the duties of Emergency Coordinator promptly upon commencement of the simulated emergency, and directed the response until formally relieved by the Station Manager following declaration of the Alert emergency classification. Required interactions between the licensee's emergency response organization, State, and local support agencies were adequate and consistent with the scope and objectives of the exercise.

No violations or deviations were identified.

5. 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, specific guidance promulgated in Section II.D of NUREG-0654; and guidance developed in NRC Information Notice 83-28.

An Emergency Action Level (EAL) matrix was promptly used to identify and properly classify the initiating emergency event and escalate it 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 properly used and was consistent with the Emergency Plan and implementing procedures. The sytem was observed to be adequate for classification of the simulated accident events. The emergency procedures provided for initial and continuing mitigating actions during the simulated casualty.

No violations or deviations were identified.

6. Notification Methods and Procedures (82301)

This area was observed to ensure that procedures were established by the licensee for notification of State and local response organizations, and emergency personnel, and that the content of initial and followup messages was disseminated to these organizations. This area was further observed to ensure 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 guidance promulgated 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 organizations, if required. Inspection also disclosed that the licensee consistently implemented prompt notification of the State and counties within the 15-minute time regime following declaration of each emergency classification during the exercise. Periodic updating of the State regarding plant status via telephone and hard copy was also consistently implemented.

No violations or deviations were identified.

7. Emergency Communications (82301)

This area was observed to ensure 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 guidance promulgated in Section II.F of NUREG-0654.

The inspector observed communications within and between the licensee's emergency response facilities (Control Room, TSC, and OSC,), the licensee and offsite response organizations, and the offsite environmental monitoring teams and the TSC. The inspector also observed information flow among the various groups within the licensee's emergency organization. Emergency communications and communication systems were significantly effective, and consistent with emergency response requirements. A dedicated intercom/plant PA system linking the TSC with the Control Room and OSC was available for routine facility briefings by the Emergency Coordinator, and other interfacility communications as required.

No violations or deviations were identified.

8. 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 guidance promulgated in Section I.H of NUREG-0654.

The inspector observed activation, staffing, and operation of the emergency response facilities, and observed the use of equipment therein. Emergency response facilities used by the licensee during the exercise included the Control Room, TSC, and OSC. The CMC was not activated during this exercise.

a. Control Room - Unit 1 Control Room was provided for the exercise Shift Supervisor and his staff. Required communications equipment, Control Room procedures and documents were readily available. The inspector observed that, following review and analysis of the sequence of accident events, Control Room operations personnel promptly initiated required responses to the simulated casualty. Emergency procedures were readily available, routinely followed, and factored into accident assessment and mitigation exercises. Control Room personnel involvement was essentially limited to those personnel assigned routine and special operational duties. Effective management of personnel gaining access to the Control Room precluded overcrowding, and maintained an ambient noise level required for orderly conduct of operations under emergency conditions.

The Shift Supervisor and the Control Room Operators were cognizant of their duties, responsibilities, and authorities. These personnel demonstrated an understanding of the emergency classification system and the proficient use of specific procedures to determine and declare the proper emergency classification. The staff also demonstrated the capability to consistently and effectively assess the initial conditions and implement required mitigating actions in a timely manner. It was noted that a detailed log of Control Room activities was maintained by the Shift Supervisor throughout the exercise. The Shift Supervisor demonstrated effective management and control of the facility and staff during the exercise.

b. The Operations Support Center (OSC) was relocated and effectively designed to separate the team staging and facility operations areas. Configuration of the facility significantly reduced the ambient noise level necessary to the conduct of required operations. The OSC was promptly staffed following activation of the Emergency Plan by the Emergency Coordinator and declaration of the Alert. An inspector observed that reentry teams were promptly assembled, briefed, and dispatched. A health physics technician accompanied each team. The OSC Supervisor appeared to be cognizant of his duties and responsibilities. During operation of the facility, radiological habitability was routinely monitored and documented.

The OSC Supervisor established and maintained effective management and control of the facility. The facility staff was frequently upsated regarding plant status. The supervisor also assured that investigation and repair teams were thoroughly briefed regarding their tasks prior to deployment to the accident areas. During the exercise, inspection disclosed a concern identified by the inspector and licensee representatives regarding implementation of unapproved nonprocedural emergency actions. In response to loss of a second residual heat removal (RHR) pump (consistent with the simulated casualty), OSC management proposed restoration of the reactor water storage tank (RWST) inventory via modification of an existing valve alignment to provide transfer of water from the spent fuel pool to the referenced tank. Although concurrence was later given, the action was initiated without prior concurrence of the Emergency Coordinator and cognizant TSC staff. This item was thor ughly discussed with licensee representatives prior to and during the exit interview. This concern will be tracked as an inspector follow-up item (IFI).

IFI 50-413, 414/89-12-01: Provide specific guidance for review, approval, and implementation of nonprocedural emergency actions during plant emergencies.

No violations or deviations were identified.

c. Technical Support Center (TSC) - The TSC was activated and promptly staffed following notification by the Emergency Coordinator of the simulated emergency conditions and the declaration of an Alert. The facility staff appeared to be cognizant of their emergency duties, authorities, and responsibilities. Required operation of the facility proceeded in an orderly manner. The TSC was provided with adequate equipment for support of the assigned staff and continued mitigation of the postulated casualty.

During operation of the TSC, radiologica, habitability was routinely monitored and documented, and personnel dosimetry was distributed as required. Status boards and related visual aids were strategically located to facilitate viewing by the TSC staff. Status boards were maintained by communicators assigned to the facility. Inspection also disclosed the following additional findings, namely: (1) engineering, maintenance, and other technical support functions were readily implemented and factored into problem-solving exercises; (2) assumption of duties by the Emergency Coordinator was definite and firm: (3) transfer of certain emergency responsibilities from the Control Room to the TSC was firmly declared and announced to the TSC staff; (4) simultaneous briefings of the TSC and OSC staffs by the Emergency Coordinator's use of the dedicated intercom system were frequent, and consistent with changes in plant status and related emergency conditions; (5) accountability, including identification of missing personnel, was readily implemented within the required time regime and was consistent with the scope and objectives of the scenario; and (6) TSC controllers were effective in identifying minor scenario problems, and interacted with players without prompting.

The TSC dose assessment group demonstrated proficiency in manual and computerized assessment methodologies. Contact between the assessment group and offsite monitoring teams (OMTs) were routinely maintained. OMTs were frequently appraised of changing plant conditions and casualty status. Offsite dose assessment and dose projections were consistent with the offsite radiological data provided, and were performed in a timely manner. Results provided by the TSC dose assessment group were incorporated into offsite followup notification messages. The dose assessment staff demonstrated a significant commitment to training throughout the exercise. Additionally, facility access and contamination control were consistently maintained throughout the exercise.

No violations or deviations were identified.

9. 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)(9), Paragraph IV.B of Appendix E to 10 CFR 50, and specific guidance 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 directly resulting from the casualty. During the exercise, accident assessment teams functioned effectively in analyzing plant status and providing recommendations to the Emergency Coordinator regarding the following: (1) mitigating actions required to reduce damage to plant systems and equipment; (2) prevention and/or control of radioactive releases; and (3) prompt termination of emergency conditions.

Radiological assessment activities involved several groups. An inplant group was effective in projecting the radiological impact within the plant based upon inplant monitoring and onsite measurements. Offsite radiological monitoring teams were dispatched to determine the level of radioactivity in those areas within the influence of the radioactive plume. Radiological effluent data provided by inplant and offsite teams were received in the TSC where dose calculations were computed and factored into the exercise. All resultant data were consistent with projected scenario parameters. Offsite monitoring teams were neither observed nor evaluated by NRC during this exercise; however, inspectors observed that the TSC Field Team Coordinator frequently briefed and updated the offsite monitoring teams on periodic meteorological changes, plant releases data, and plant casualty status. Communications between the subject entities were effective throughout the exercise.

No violations or deviations were identified.

10. Protective Measures (82301)

This area was observed to determine whether guidelines for protective actions, consistent with federal guidance, were developed and in place, and whether protective actions for emergency workers, including evacuation of nonessential personnel, were promptly implemented pursuant to 10 CFR 50.47(b)(10), and specific guidance promulgated in NUREG-0654.

The protective measures decision-making process was observed by the inspector. For each emergency classification defined, appropriate inplant and offsite protective measures were reviewed and implemented where required. Protective measures recommendations were consistent with the accident conditions postulated during the exercise. Protective action recommendations were also consistent with the facility Radiological Emergency Plan and respective procedures.

No violations or deviations were identified.

11. Radiological Exposure Control (82301)

This area was observed to determine whether methods for controlling radiological exposures during an emergency were established and implemented for emergency workers, and whether these methods included exposure guidelines consistent with Environmental Protection Agency (EPA) recommendations pursuant to 10 CFR 50.47(b)(11), and specific guidance prcmulgated in Section II.K of NUREG-0654.

An inspector noted that radiological exposures were controlled throughout the exercise by issuing supplemental dosimeters to emergency workers, and conducting periodic radiological surveys in the emergency response facilities. Exposure guidelines were in place for various categories of emergency actions taken. Adequate protective clothing and respiratory protection were available for use as required.

Health Physics control of radiation exposure, contamination, and access to radiation areas was determined to be adequate. The Health Physics Supervisor was observed to thoroughly brief OSC survey, investigative, and repair teams prior to their deployment into radiation controlled areas. Dosimetry was available and effectively used. High-range fosimeters were also available, if needed.

No violations or deviations were identified.

12. Public Education and Information (82301)

This area was observed to determined whether information concerning the simulated emergency was made available for dissemination to the public as required by 10 CFR 50.47(b)(?), Paragraph IV.D of Appendix E to 10 CFR 50, and specific criteria promulgated in Section II.G of NUREG-0654.

Information was provided to the media and the public in advance of the exercise; however, this area was not evaluated during the exercise.

- 13. Status of Previous Findings (92701)
 - a. (Closed) IFI 50-413,414/89-04-01: Formalize a procedure for Alert and Notifcation System (ANS) testing, maintenance, and followup actions.

Inspection disclosed that a detailed procedure was established and implemented to ensure that sirens and related components of the alert and notification system were operable and maintained as required.

b. (Closed) IFI 50-413, 414/89-04-02: Conduct an augmentation drill to verify and document Figure B-1 staffing requirements and arrival times.

Inspection disclosed that an off-hour augmentation drill was conducted. Response of emergency organization personnel was consistent with Table B-1 of the Emergency Plan with regard to required staffing and arrival time at the plant site and designated facilities (Control Room, OSC, TSC).

14. Critique (82301)

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The licensee's critique of the emergency exercise was observed to determine whether deficiencies, weaknesses and required improvement items identified during the exercise were 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 to 10 CFR 50, and specific guidance promulgated in Section II.N of NUREG-0654.

The licensee conducted a players' critique in each emergency facility immediately after the exercise, followed by a comprehensive Controller/ Evaluator critique. The Licensee/NRC critique was conducted on September 28, 1988, with those persons listed in Paragraph 1, above. The licensee's critique was detailed and comprehensive and documented those items requiring review and corrective action. Following the licensee's critique, the NRC inspector described the areas evaluated and discussed in detail the inspection results contained in this report. No dissenting comments were received from the licensee. The licensee did not identify as proprietary any materials provided to or reviewed by the inspector during this inspection.

Item Number

Description and Reference

50-413, 414/89-12-01

Provide specific guidance for review, approval, and implementation of nonprocedural emergency actions during plant emergencies (Paragraph 8.b).