



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

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Report No.: 50-395/89-10

Licensee: South Carolina Electric & Gas Company
 Columbia, SC 29218

Docket No.: 50-395

License No.: NPF-12

Facility Name: Summer

Inspection Conducted: June 5-8, 1989

Inspector: William H. Rankin 7-7-89
 for A. L. Cunningham Date Signed

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 William H. Rankin, Chief
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 Emergency Preparedness and Radiological
 Protection Branch
 Division of Radiation Safety and Safeguards
 Date Signed

SUMMARY

Scope:

This routine, announced inspection involved observation and evaluation of the annual radiological emergency response exercise. The limited participation onsite exercise commenced at 7:30 a.m. on June 7, 1989. Concurrently, Fairfield, Lexington, Newberry, and Richland Counties conducted a full-scale response exercise. The latter exercise commenced at 6:00 p.m. on June 6, 1989. The exercise was suspended at 7:30 p.m. on that date, and later resumed at 9:00 a.m. on June 7, 1989. Thereafter, the exercise was coordinated with the flow of the licensee's onsite exercise scenario. The onsite and offsite exercises were terminated at 1:30 p.m. on June 7, 1989. The State of South Carolina participated only to the extent required to support the counties in fully implementing their exercise objectives. The status of outstanding 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. The licensee also demonstrated consistent and effective management and control of the emergency response facilities staff and assigned tasks. Additionally, onsite and offsite protective action recommendations were consistent with the emergency classifications declared, and the prevailing radiological conditions.

One item of concern was identified and classified as an Exercise Weakness, namely: failure to promptly provide required offsite dose assessment and respective dose projections following the initial radioactive materials release (Paragraph 9).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *W. Baehr, Manager, Chemistry and Health Physics
- *K. Beale, Emergency Services
- *R. Bender, Training Instructor
- *C. Counts, Emergency Services Coordinator
- *B. Duncan, Assistant Media Coordinator
- *S. Furstenberg, Shift Supervisor
- *G. Gowdy, Staff Health Physicist
- *D. Ivey, Nuclear Purchasing Supervisor
- *J. Nesbitt, Maintenance Supervisor
- *K. Nettles, General Manager, Nuclear Safety
- *J. Skolds, General Manager, Nuclear Power Operations
- *R. Sweet, Quality Assurance Supervisor
- *B. Williams, Project Control Supervisor
- *M. Williams, General Manager, Nuclear Services

Other licensee employees contacted during this inspection included craftsmen, engineers, operators, mechanics, security force members, technicians, and administrative personnel.

- *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 scenario 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 information to the State, counties, local governments, and Federal agencies consistent with the scope of their participation in the exercise.

The licensee also 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.

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), Operations Support Center (OSC), and the Emergency Operations Facility (EOF). Required staffing and specific assignment of responsibility at these facilities were consistent with the REP and respective implementing procedures. The Emergency News Center (ENC) was activated during this exercise; however, this facility was not evaluated.

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 NUREG-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 Director 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, and specific guidance promulgated in Section II.D of NUREG-0654.

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

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 follow-up messages was disseminated to these organizations. This area was further observed to ensure that means for provision of 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 organization, 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. Periodic updating of the State and counties 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, OSC, and EOF), the licensee and offsite response organizations, and the offsite radiological monitoring teams and the EOF. 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 selectively with the Control Room, OSC, and EOF was available for routine facility briefings by the Emergency Director, and other interfacility and plant 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 II.H. of NUREG-0654.

The inspector observed activation, staffing, and operation of the emergency response facilities and use of equipment therein. Emergency response facilities used by the licensee during the exercise included the Control Room, TSC, OSC, and EOF.

a. Control Room

The facility simulator was used to implement the exercise scenario. Required communications equipment, Control Room procedures, and related documents were readily available. The inspector observed that, following review and analysis of the sequence of emergency events, 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 the 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. Operations Support Center (OSC)

The OSC was promptly staffed and activated following declaration of the Alert. An inspector observed that reentry teams were promptly assembled, briefed, and dispatched. A health physics (HP) 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.

The OSC Supervisor established and maintained outstanding management and control of the facility. The facility staff was periodically updated regarding plant status. The supervisor also assured that investigation and repair teams were thoroughly briefed regarding their tasks prior to deployment to accident areas. The OSC Supervisor demonstrated firm and effective command and control of the facility throughout the exercise.

c. Technical Support Center (TSC)

The TSC was activated and promptly staffed following declaration of the Alert classification, and notification by the Emergency Director of the simulated emergency conditions and plant status. The 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.

During operation of the facility, radiological 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 staff. Status boards were maintained by dedicated communicators assigned to the facility. The inspection also disclosed the following additional

findings: (1) engineering, maintenance, and other technical support functions were readily implemented and factored into problem-solving exercises; (2) assumption of duties by the Emergency Director was prompt and effective; (3) transfer of certain emergency responsibilities from the Control Room to the TSC was firmly declared and announced to the TSC staff; (4) briefings of the TSC staff 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 exercise; and (6) TSC Controllers were effective in identifying minor scenario problems, and maintaining required interaction with players without prompting. The transfer of authority and specific responsibilities by the Emergency Director to the EOF Offsite Emergency Coordinator was prompt, effective and consistent with the REP and implementing procedures. Frequent and effective communications were maintained between the facility managers and respective staffs, except as discussed in Paragraph 8.d, below.

d. Emergency Operations Facility (EOF)

The EOF was promptly staffed and activated following declaration of the Site Area Emergency. Additionally, EOF security was promptly established and included as a routine requirement for preparation and activation of the facility. Transfer of authority and responsibilities of the TSC Emergency Director to the EOF Offsite Emergency Coordinator, attending activation of the facility, was firm and effective. The Offsite Emergency Coordinator was updated on the status of the emergency and was thoroughly briefed on previous and proposed mitigating actions. EOF communications with the Control Room, and TSC were maintained throughout the exercise. Status boards and other related visual aids were strategically located and readily accessible for viewing by the EOF staff. Dedicated communicators were assigned to the facility, and all required notifications were promptly made.

During the exercise, the inspector and licensee controllers in the EOF Command Center observed some confusion regarding protective action recommendations (PARs)-attending the initial offsite release, resulting from a lack of coordination between the Emergency Director and the Offsite Emergency Coordinator. Although the TSC and EOF fully agreed on the PAR issued, the lack of coordination between the facilities' principals resulted in a significant delay in issuance of the PAR to the State. The licensee discussed this finding during the EOF critique immediately following termination of the exercise. Additionally, the subject finding was thoroughly discussed during the licensee's Controller/Evaluator Critique on June 7, 1989, and the exit interview of June 8, 1989. This item was assigned by the licensee as an exercise action item requiring detailed review and corrective action. The licensee further committed to additional training in this area to ensure required coordination between the two

facilities to preclude delay of issuance of PARs to the State. In view of the significance of the licensee's finding and the commitment to implement corrective actions, this item will be tracked as an Inspector Follow-up Item (IFI) and reviewed during future inspections. No dissenting comments were expressed by the licensee.

IFI 50-395/89-10-01: Ensure required coordination between the TSC and EOF regarding PARs and prompt issuance of same to the State.

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 personnel and offsite populace directly resulting from the casualty. During the exercise, accident assessment teams functioned effectively in analyzing plant status and providing recommendations to the Emergency Director 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 monitored the radiological impact within the plant boundary 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 plume. Radiological effluent data provided by inplant and offsite monitoring teams were received in the TSC and EOF where dose calculations were computed and factored into the exercise.

The inspector observed, however, that the EOF dose assessment group failed to provide the Offsite Emergency Coordinator with either estimated or actual offsite dose rates/projections for approximately 82 minutes following the initial radioactive release. Consistent with this finding, the licensee also observed several areas of dose assessment requiring improvement, namely: (1) poor maintenance of offsite records and logs; (2) delays in team(s) calculating offsite doses and dose projections; (3) inaccurate radiological sample counting; and (4) delays in returning selected offsite samples for radiological analysis.

The inspector fully discussed the above findings with cognizant licensee representatives prior to and during the exit interview. The inspector further informed the licensee that the excessive delay in providing the

Offsite Emergency Coordinator with required offsite dose assessment/projection data following the initial release of radioactive materials to the environment was considered an Exercise Weakness. No dissenting comments were expressed by the licensee. This item will be reviewed during future inspections.

Exercise Weakness 50-395/89-10-02: Excessive delay in provision of offsite dose assessment/projection data to the Offsite Emergency Coordinator (EOF) following the initial release of radioactive materials to the environment.

Licensee findings regarding dose assessment were discussed in detail during the Controller/Evaluator Critique and the exit interview. Accordingly, the findings were documented as exercise action items for additional review and corrective action. These items will be reviewed during future inspections.

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. PARs were also consistent with the facility REP and respective procedures; however, required improvement in coordinating PARs between the TSC and EOF, and prompt issuance of same to the State, is discussed in Paragraph 8.d., above.

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 promulgated in Section II.K of NUREG-0654.

The inspector observed that radiological exposures were controlled throughout the exercise by issuing supplemental dosimeters to emergency workers and conducting periodic radiological surveys in each emergency

response facility. Exposure guidelines were in place for various categories of emergency actions taken. Adequate protective clothing and respiratory protection equipment were available for use as required.

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

No violations or deviations were identified.

12. Public Education and Information (82301)

This area was observed to determine whether information concerning the simulated emergency was made available for dissemination to the public as required by 10 CFR 50.47(b)(7), 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 public in advance of the exercise; however, public information and the ENC were not evaluated during this exercise.

No violations or deviations were identified.

13. Status of Previous Emergency Preparedness Findings

- a. (Closed) IFI 50-395/88-06-01: Review specifications and documentation on steam line monitors and make modifications to improve radiation sensitivity to accurately assess radiation releases.

Review and evaluation of subject specifications and documentation on steam line monitors confirmed that required modifications to enhance radiation sensitivity regarding assessment of radiation releases was addressed by the licensee.

- b. (Closed) IFI 50-395/88-06-02: Locate all available documentation pertaining to validation, verification, and methodology of dose assessment models and centralized maintenance of same in the Plant General System.

Inspection confirmed that validation and verification regarding computerized and manual dose assessment models and programs were centralized and maintained in the Plant General System.

- c. (Closed) IFI 50-395/88-06-03: Establish a periodic calculational comparison between dose assessment models and document significant differences.

Inspection confirmed that the licensee implemented periodic comparisons between their dose assessment models and those of the State, and the NRC.

- d. (Closed) IFI 50-395/88-11-02: Provide additional training for all personnel with responsibilities as the Emergency Director or interim Emergency Director.

Inspection disclosed that required training was implemented. Referenced training was verified by inspection and evaluation of organizational training records.

- e. (Closed) IFI 50-395/89-02-02: Develop administrative controls to ensure that prompt corrective actions are taken to repair all equipment used for public notification.

Inspection confirmed that Revision 11 of Emergency Plan Implementing Procedure EPP-022 (Verification of Communications Operability) provided administrative controls to ensure prompt repair and maintenance of the subject equipment.

- f. (Closed) IFI 50-395/89-02-03: Develop and implement a surveillance procedure for the emergency warning system in high noise areas.

Inspection disclosed that Sections 4.5 and 5.2.2 of Revision 11 to EPP-022 provided for surveillance and testing of the subject warning system.

- g. (Closed) IFI 50-395/89-02-04: Conduct periodic drills and/or communications test for the ENS communicators with hands-on experience using the ENS.

Inspection disclosed that communication tests were performed in accordance with Revision 11 to Procedure EPP-022. Required drills were conducted in accordance with Revision 9 to Procedure EPP-018.

- h. (Open) Violation 50-395/89-02-05: Failure to provide seven members of the offsite radiological monitoring team training in accordance with EPP-018.

The subject item remains open pending review and evaluation of relevant training records.

15. Federal Evaluation Team Report

The inspector attended the Federal Evaluation Team (Regional Assistance Committee and the Federal Emergency Management Agency) critique of offsite exercise activities conducted by Fairfield, Lexington, Newberry, and Richland Counties, and elements of the State of South Carolina emergency response organization. The State participated only to the extent necessary to support the counties' implementation of the objectives of the

offsite exercise. The FEMA final report will be forwarded to the licensee by separate correspondence.

The public meeting addressing the onsite and offsite exercises scheduled for 11:00 a.m. on June 8, 1989, was cancelled for lack of attendance of news media representatives and members of the general public.

14. Critique (82301)

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 management's attention 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 following termination of the exercise. A comprehensive Controller/Evaluator critique was convened at 3:00 p.m. on June 7, 1989. All deficiencies, weaknesses, and improvement items were documented for presentation to licensee management. The Licensee/NRC critique was conducted at 1:30 p.m. on June 8, 1989, with those persons listed in Paragraph 1 above. The licensee's critique was detailed and documented exercise action 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.

<u>Item No.</u>	<u>Type</u>	<u>Description and Reference</u>
50-395/89-10-01	IFI	Ensure required coordination between TSC and EOF regarding PARs and prompt issuance of same to the State (Paragraph 8.d.).
50-395/89-10-02	EW	Excessive delay in provision of offsite dose assessment/projection data to the Offsite Emergency Coordinator following the initial release of radioactive materials to the environment (Paragraph 9).