



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

AUG 14 1991

Report No.: 50-395/91-12

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

Docket No.: 50-395

License No.: NPF-12

Facility Name: V. C. Summer Nuclear Station

Inspection Conducted: July 16-19, 1991

Inspector:

A. Gooden
A. Gooden

8-12-91

Date Signed

Accompanying personnel: K. Clark
G. Maxwell
M. Stein

Approved by:

Fred Wright
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Emergency Preparedness Section
Radiological Protection and Emergency
Preparedness Branch
Division of Radiation Safety and Safeguards

8/13/91

Date Signed

SUMMARY

Scope:

This routine, announced inspection involved the observation and evaluation of the annual emergency preparedness exercise. This full-scale exercise included the participation of State and local authorities, which was observed by the Federal Emergency Management Agency (FEMA); and four NRC observers evaluated the licensee's response in the Simulator Control Room, Technical Support Center (TSC), Operational Support Center (OSC), Emergency Operations Facility (EOF), and the News Media Center.

Results:

No violations, deviations, or exercise weaknesses were identified. The licensee's response was considered fully successful and effective in several areas: accident identification, mitigation, classification, notification/activation, and public information. There were however, three areas noted as negative observations that warrant attention for improvement: communications, status boards, and assessment of protective action recommendations (PARs). The use of the Simulator Control Room to generate plant parameter data on computer terminals in the various response facilities provided realism and contributed to the level of participation by plant staff in performing various roles and responsibilities. Additional strengths included the Emergency Director's

command and control in the TSC; the prioritization of repairs by the Control Room and TSC; and plant security staff response during accountability and the medical emergency.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *K. Beale, Supervisor, Emergency Services
- *L. Blue, Manager, Corporate Health Physics and Environmental Programs
- L. Boughknight, Emergency Planning Specialist
- *R. Clary, Manager, Design Engineering
- *M. Clonts, Manager, Facilities and Administration
- *C. Counts, Coordinator, Emergency Services
- *C. Fields, Shift Engineer
- *G. Gibson, Manager, Nuclear Protection Services
- *G. Hall, Assistant Manager, Health Physics
- *W. Higgins, Supervisor, Regulatory Compliance
- *W. Lide, Manager, Public Affairs
- *D. McGlaufflin, Supervisor, Security
- *D. Moore, General Manager, Station Support
- *R. Myers, Emergency Planning Specialist
- *C. Osier, Acting Manager, Systems and Performance Engineering
- *M. Quinton, General Manager, Engineering Services
- *J. Skolds, Vice President Nuclear Operations
- *G. Soult, General Manager Nuclear Plant Operations
- *G. Taylor, Manager, Operations

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

South Carolina Emergency Preparedness Division

- *B. Reavis, Area Coordinator
- *G. Schneider, Chief, Area A-Technical Plans

Nuclear Regulatory Commission

- *R. Haag, NRC Resident Inspector

*Attended exit interview

2. Exercise Scenario (82302)

The scenario for the emergency exercise was reviewed to determine that provisions had been made to test an integrated emergency response capability as well as the basic elements existing within the licensee, State and local Emergency Plans and organization as required by 10 CFR 50.47(b)(14), 10 CFR 50, Appendix E, Paragraph IV.F and specific criteria in NUREG-0654, Section II.N.

The scenario was reviewed in advance of the scheduled exercise date and discussed with a member of the licensee's staff. The scenario developed for this exercise was adequate to exercise the onsite and offsite emergency organizations of the licensee and provided sufficient emergency information to the State and local government agencies for their participation in the exercise. No prompting or undue interaction between controllers and players were observed during the exercise.

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 had been specifically established and that adequate staff was available to respond to an emergency as required by 10 CFR 50.47(b)(1), 10 CFR 50, Appendix E, Paragraph IV.A, and specific criteria in NUREG-0654, Section II.A.

The inspector observed that specific emergency assignments had been made for the licensee's emergency response organization and there were adequate staff to respond to the simulated emergency. The Shift Supervisor promptly assumed the responsibilities as Interim Emergency Director (IED) until such time that the augmented organization was in place and prepared to assume lead. Long term or continuous staffing of the emergency response organization was not demonstrated.

The inspector observed timely activation, staffing, and operation of the TSC, OSC, and EOF/News Media Center. The assignment of responsibility at each of the facilities were consistent with the licensee's Emergency Plan and EPPs. Onsite and offsite support organization interaction was demonstrated during a limited medical drill. The drill assessed the ability of OSC personnel and the Fairfield County Emergency Medical Service (EMS) personnel to effectively render aid to a simulated contaminated injured person. However, the portion of the drill involving the emergency room staff for the offsite medical hospital (Richland Memorial) was not performed during this drill, but will be demonstrated at a later date (December 1991).

No violations or deviations were identified.

4. Emergency Response Support and Resources (82301)

This area was observed to determine that arrangements for requesting and effectively using assistance resources have been made, that arrangements to accommodate State and local staff at the licensee's near-site EOF have been made, and that other organizations capable of augmenting the planned response have been identified as required by 10 CFR 50.47(b)(3), 10 CFR 50, Appendix E, Paragraph IV.A, and specific criteria in NUREG-0654, Section II.C.

State and local involvement in this exercise was consistent with the exercise scope and objectives. Assistance resources from State/local agencies were limited to offsite EMS personnel as discussed above in

Paragraph 3. A State liaison was accommodated at the EOF, and State/local Public Information personnel responded to the News Media Center. Arrangements and current Letters of Agreement had been executed with offsite support agencies.

No violations or deviations were identified.

5. Emergency Classification System (82301)

This area was observed to determine that a standard emergency classification and action level scheme is in use by the licensee as required by 10 CFR 50.47(b)(4), 10 CFR 50, Appendix E, Paragraph IV.C, and specific criteria in NUREG-0654, Section II.D.

An emergency action level (EAL) scheme described in Section 4.0 of the Emergency Plan was used to promptly identify and properly classify the emergency. EPP-001, Attachment II contain EAL tables with initiating conditions and detection methods provided for event declarations. The EAL tables were used effectively by the emergency organization. The licensee's emergency procedures provided for initial and continuing mitigating actions during the simulated emergency.

No violations or deviations were identified.

6. Notification Methods and Procedures (82301)

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

An inspector observed that notification methods and procedures had been established and were used to provide information concerning the simulated conditions to Federal, State, and local response organizations and to alert the licensee's augmented emergency response organization. EPP-002 entitled, "Communication and Notification," contained the initial notification forms and the Event Notification worksheet used to make offsite and NRC notifications respectively. All notifications (initial and followups) were within the required time regime.

The Early Warning Siren System (EWS) for alerting the public within the plume exposure pathway was actuated during this exercise. Residents within the 10 mile Emergency Planning Zone (EPZ) were notified in advance that a test of the sirens would occur sometime during the day of the exercise.

No violations or deviations were identified.

7. Emergency Communications (82301)

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

The inspector observed communications among the licensee's emergency response facilities, within the licensee's emergency organization, and between the licensee's emergency response organization and offsite authorities. Some minor equipment problems were noted by licensee observers involving the audibility of speakers in Warehouse C; operability of the EOF phone used for briefing; and the audibility of paging system in the vicinity of the Chemistry lab/count room. The aforementioned problems did not hamper or detract from the licensee's overall response to the emergency.

No violations or deviations were identified.

8. Public Education and Information (82301)

This area was reviewed to verify that information concerning the simulated emergency was made available for dissemination to the public as required by 10 CFR 50.47(b)(7), 10 CFR 50, Appendix E, Paragraph IV.D and specific criteria in NUREG-0654, Section II.G.

Information was provided to the media and the public in advance of the exercise. Information regarding details on how the public would be notified and what initial actions should be taken during an emergency was included in the licensee's public information brochure provided to residents and businesses within the 10-mile EPZ. A News Media Center was established in the Nuclear Training Center.

No violations or deviations were identified.

9. Emergency Facilities and Equipment (82301)

This area was observed to determine that adequate emergency facilities and equipment to support an emergency response are provided and maintained as required by 10 CFR 50.47(b)(8), 10 CFR 50, Appendix E, Paragraph IV.E, and specific criteria in NUREG-0654, Section II.H.

The inspector observed activation, staffing, and operation of the emergency response facilities. No major equipment deficiencies were observed. Facilities observed by the NRC evaluation team included:

- a. Simulator Control Room - An inspector observed that the Simulator Control Room staff were prompt and correct in event recognition and classification. The immediate actions taken by the Control Room staff in event classification and procedural implementation was considered timely and effective. The Shift Supervisor was observed during the initial stages of the emergency for evaluating the Shift Supervisor's actions as the IED in managing the emergency. The inspector noted that the Shift Supervisor was actively involved in

the analysis of plant conditions and the implementation of mitigating conditions.

- b. TSC - The TSC was considered activated within 16 minutes from the time the Alert classification was announced. Discussions between the Emergency Director and members of the TSC staff regarding event classification decisions, accident assessments, and plant mitigating conditions were effective and technically sound. TSC briefings were frequent and detailed, including prioritization of repairs. The Emergency Director demonstrated command and control throughout the simulated accident. Two minor negative observations were noted involving communications and the notification status board:
- ° During a temporary absence from the TSC decision-making area (for approximately 3 minutes), the Emergency Director did not provide a formal turnover briefing and identify the alternate Emergency Director prior to departure.
 - ° Regarding status board updates, for more than an hour, the notification status board was not updated.

The aforementioned items were documented by the licensee during the Controller-Evaluator critique for review and actions as improvement items.

- c. OSC - The OSC was promptly staffed, and used as a staging area for the various teams assigned responsibilities in support of the emergency operations. An inspector observed the response by the Emergency Medical Team (EMT) from the OSC in response to the injured and contaminated personnel. Although communications between the EMT and OSC was poor, the EMT response to remove the injured victims were prompt and appropriate. Security response during the medical emergency was timely and effective in the area of access control. However, communications and equipment status board were noted as areas of negative observations:
- ° In the area of communications, the following examples were noted: (1) for more than 30 minutes there was no communication between the EMT and the OSC Supervisor; (2) the Health Physics Supervisor did not provide a formal turnover briefing and identify the alternate Health Physics Coordinator prior to departure; (3) for more than an hour there was no OSC briefing by the OSC Supervisor; and (4) the Emergency Director's briefing regarding the General Emergency upgrade was inaudible in certain areas of the OSC.
 - ° The equipment status board was not properly maintained. An information column was left blank and updated information regarding the equipment status was not consistently tracked.

During the Controller-Evaluator critique, the licensee documented the above items for review and actions as improvement items.

- d. EOF - Facility staffing was timely and in accordance with the site Emergency Plan. Lead responsibility in the areas of emergency communication, PARs, and event classification was transferred from the Emergency Director in the TSC to the Offsite Emergency Coordinator (OEC) in the EOF once the EOF was considered operational. Interaction between the OEC in the EOF and the ED in the TSC regarding execution of the response activities was effective. However, in the area of PARs, an inspector noted the following negative observation:

- ° During the formulation of PARs, forecast meteorological data was not used for followup PARs nor the initial PARs.

This item was discussed with the licensee for consideration as an improvement item to ensure the adequacy of PARs during changing meteorological conditions.

- e. News Media Center - The center was located inside the Nuclear Training Center. Following activation, all press releases were generally issued in a timely and accurate manner. An inspector noted that with one exception, the facility was adequately equipped. The one exception considered as a negative observation:

- ° No status board was available in the News conference area and/or the joint information center.

The above item was also noted by the licensee observer for consideration as an improvement item.

The inspector informed the licensee during the formal critique that actions taken in response to those improvement items identified in the areas of communication, status boards, and PARs assessment, will be tracked as an inspector followup item (IFI).

IFI 50-395/91-12-01: Review and take appropriate corrective actions on improvement items that were identified in the areas of communications, status boards, and PAR assessment.

No violations or deviations were identified.

10. 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), 10 CFR 50, Appendix E, Paragraph IV.B, and specific criteria in NUREG-0654, Section II.I.

The accident assessment program included both an engineering assessment of plant status and an assessment of radiological hazards to both onsite and offsite personnel resulting from the accident. Both programs appeared effective during this exercise in analyzing the plant status so as to make recommendations to the Emergency Director concerning mitigating actions to reduce damage to plant equipment, to prevent release of radioactive materials, and to terminate the emergency condition.

No violations or deviations were identified.

11. Protective Responses (82301)

This area was observed to verify that guidelines for protective actions during the emergency, consistent with Federal guidance, were developed and in place, and protective actions for emergency workers, including evacuation of nonessential personnel, were implemented promptly as required by 10 CFR 50.47(b)(10), and specific criteria in NUREG-0654, Section II.J.

An inspector verified that the licensee had developed and implemented emergency procedures for formulating PARs for offsite populations within the 10-mile EPZ. The licensee's PARs were consistent with the Environmental Protection Agency (EPA) and other criteria. However, as discussed above in Paragraph 9.d, forecast meteorological data was not used when developing PARs or evaluating the adequacy of PARs. The inspector discussed with members of the licensee's emergency preparedness staff the importance of forecast MET data in assessing if PARs should be expanded, maintained, or cancelled. A licensee contact discussed this matter subsequent to the critique with State Emergency Planners and acknowledged this item as an area for improvement.

An inspector noted that PARs for onsite personnel following the declaration of a Site Area Emergency included the evacuation of nonessential personnel from the protected area. The accountability results were completed within 27-28 minutes.

No violations or deviations were identified.

12. Exercise Critique (82301)

The licensee's critique of the emergency exercise was observed to determine that deficiencies identified as a result of the exercise and weaknesses noted in the licensee's emergency response organization were formally presented to licensee management for corrective actions as required by 10 CFR 50.47(b)(14), 10 CFR 50, Appendix E, Paragraph IV.F, and specific criteria in NUREG-0654, Section II.N.

The licensee conducted a player critique immediately after the exercise was terminated. A Controller/Evaluator critique was conducted and observed by the NRC Evaluation Team on July 18, 1991. The licensee's Controller/Evaluator critique identified similar strengths and weaknesses as did the NRC team. Those items requiring corrective actions were discussed and assigned to the tracking system. A formal licensee/NRC

critique of the exercise was held on July 19, 1991, with exercise controllers, key exercise participants, and licensee management.

No violations or deviations were identified.

13. Federal Evaluation Team Report

The report by the Federal Evaluation Team (Regional Assistance Committee and Federal Emergency Management Agency, Region IV staff) concerning the activities of offsite agencies during the exercise will be forwarded by separate correspondence.

14. Public Meeting

A public critique of the exercise was scheduled for July 18, 1991, in Columbia, South Carolina. Participants included the licensee, FEMA, NRC, State, and local agencies.

15. Action on Previous Inspection Findings (92701)

(Closed) IFI 50-395/90-28-01: Interim Emergency Director was unable to maintain awareness of plant status because of requirement for 15-minute followup notifications.

Emergency Plan Procedure (EPP)-002, "Communication and Notification," Revision 26, requires followup notifications be made every hour or when conditions change.

(Closed) EW 50-395/90-28-02: Delayed accountability/evacuation of personnel because the ED failed to follow implementing procedure.

During the Calendar Year 1991 exercise observation, the inspector noted that approximately seven minutes after the Site Area Emergency declaration, a plant announcement was made regarding the protected area evacuation in accordance with EPP-001.3 "Site Area Emergency." The PA announcement was repeated approximately 11 minutes after the event declaration. Subsequently, accountability was completed within the required time regime.

16. Exit Interview

The inspection scope and results were summarized on July 19, 1991, with those persons indicated in Paragraph 1. The inspector described the areas inspected and discussed in detail the inspection results listed below. Proprietary information is not contained in this report. There were no dissenting comments from the licensee. Immediately after the exit, the inspector's discussion with members of the licensee's Emergency Services Staff and State Emergency Planners, disclosed that the lack of forecast MET data in the formulation of PARs was considered by the licensee as an area of improvement.

Item NumberDescription/Reference

50-395/91-12-01

IFI - Review and take appropriate corrective actions on improvement items that were identified in the areas of communications, status boards, and PAR assessment (Paragraph 9).

Licensee management representatives were informed that two open items were reviewed and closed (Paragraph 15).

Attachment:

Scope, Objectives and Scenario
Timeline

VIRGIL C. SUMNER NUCLEAR STATION
SCOPE AND OBJECTIVES

On July 17, 1991, a Radiological Emergency Exercise will be conducted at the Virgil C. Sumner Nuclear Station (VCSNS) to test the integrated capability of the emergency organizations and a major portion of the Emergency Plan's basic elements. The simulated emergency will require mobilization and response of on-site and off-site company personnel to verify their capability in an actual emergency.

The exercise will require the full participation of local and state government emergency personnel in order to verify their capability to respond to an accident.

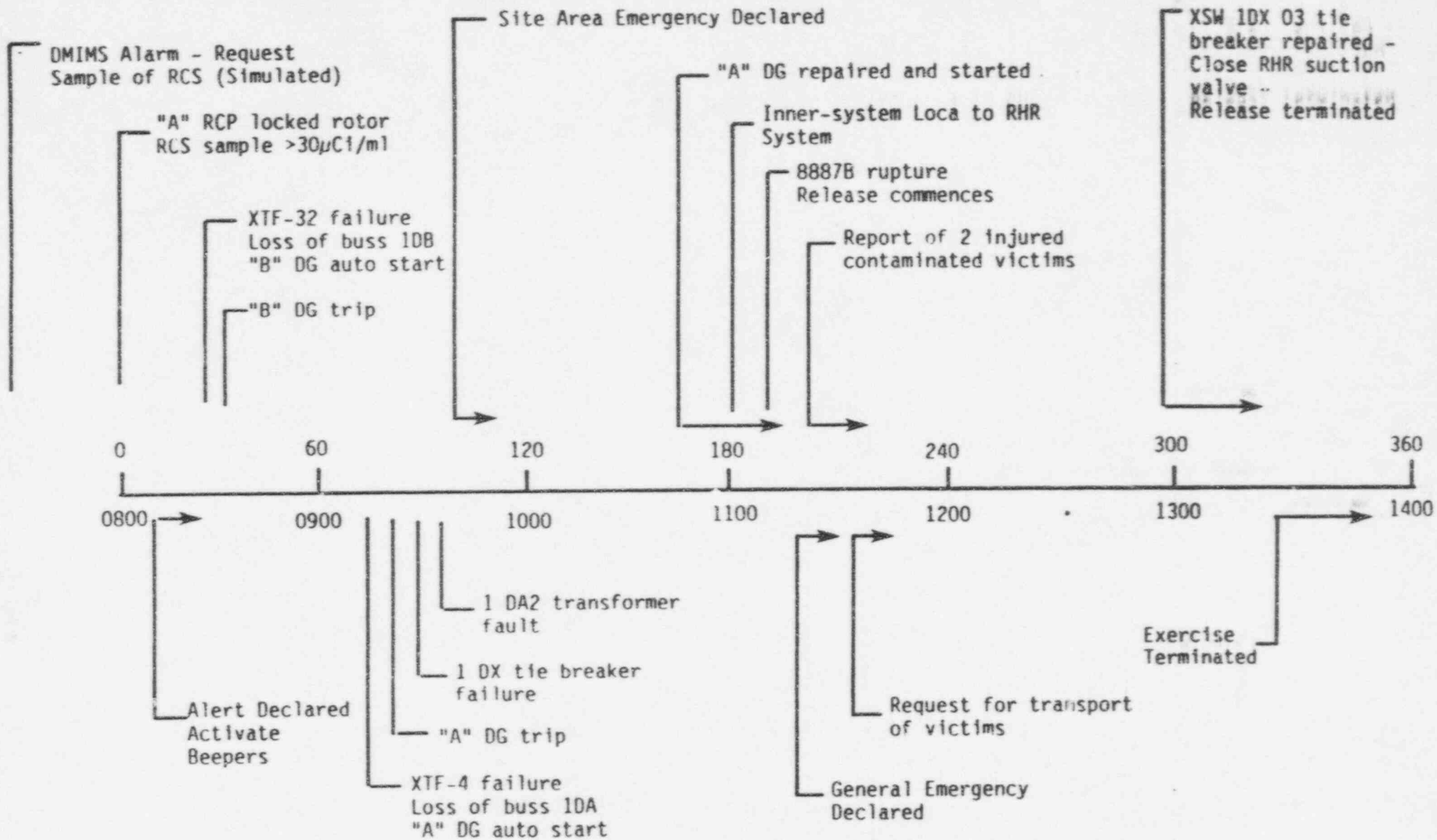
The specific elements of the VCSNS Radiation Emergency Plan which will be exercised include:

- Accident assessment and classification
- Managerial direction and control
- Technical Support Center operations
- Operations Support Center operations
- Emergency Operations Facility operations
- News Media Center operations
- Site evacuation, personnel accountability and access control
- Public alerting and notification procedures
- Radiological monitoring and dose assessment
- Medical assistance to a contaminated, injured individual

The objectives of the Radiological Emergency Exercise for South Carolina Electric & Gas Company (SCE&G) personnel are:

1. Test the ability of Operations personnel to effectively assess and respond to an abnormal operating condition which may produce an off-site radioactive release.
2. Test the abilities of Health Physics and Environmental Monitoring personnel, operating under emergency conditions, to monitor and assess radiological dose rates; to determine specific contamination levels, airborne and/or surface deposited concentrations; and, to assess specific indications (including their rates to change) that may be used for initiating emergency measures. This constitutes one of the Semi-Annual Health Physics Drills and the Annual Radiation Monitoring Drill.
3. Test the effectiveness and operability of VCSNS's site warning and evacuation procedures.
4. Test the effectiveness of VCSNS's emergency communications systems between the VCSNS and federal, state and local governments and field monitoring teams. This section constitutes the Annual Communications Drill.

5. Test the operations of the Technical Support Center and the Operations Support Center and the ability of staffing personnel to respond to an emergency condition.
6. Test the ability of the Operations Support Center to effectively dispatch and track the progress of emergency repair teams and to report team status and results.
7. Test the ability of Operations Support Center personnel to efficiently and effectively repair damaged equipment under emergency conditions.
8. Test the ability of Operations Support Center personnel, Fairfield County Emergency Medical Services personnel, and Richland Memorial Hospital Emergency Room personnel to effectively render aid to a contaminated injured person. This constitutes the Annual Medical Drill.
9. Ensure that emergency response personnel are familiar with their duties and responsibilities.
10. Test the adequacy and operability of emergency equipment and identify any deficiencies in the quantity or quality of equipment.
11. Identify any deficiencies in personnel training.
12. Test the operations of the Emergency Operations Facility with respect to physical facilities, communications, emergency equipment, operations and assistance provided to VCSNS.
13. Test the operations of the News Media Center and the ability of staffing personnel to respond to an emergency condition with respect to public information and news media interface.
14. Utilize the training simulator in the exercise with real-time station operating information and to provide more realism in the simulated emergency condition.
15. Test the ability of key emergency response personnel to adhere to procedural requirements concerning accountability and site evacuation (1990 deficiency).



CHRONOLOGICAL LISTING OF MAJOR EVENTS

<u>TIME</u>	<u>EXERCISE TIME</u>	<u>EVENT</u>
0730	T=30	RM-L1 alarm and ramp to Hi-Rad condition. DMIMS alarm for reactor vessel lower. Control Room requests sample and analysis of RCS (simulated).
0800	T=0	Locked rotor on "A" RCP. Reactor trip.
0805	T=5	RCS sample results > 30 μ Ci/ml dose equivalent iodine
*0810	T=10	Alert declared. Radio-pager system activated. Initial notifications to state and local governments
0830	T=30	Transformer XTF-32 failure. Loss of buss 10B. "B" DG auto start
0835	T=35	"B" DG trip. Faulty overspeed limit switch and fuel line rupture
0914	T=74	Transformer XTF-4 failure. Loss of buss 10A. "A" DG auto start
0920	T=80	"A" DG trip. Lube oil pressure switch failure
0921	T=81	10X tie breaker failure due to cell switch failure. No offsite power available to primary plant.
0922	T=82	Transformer 10A2 failure causing lockout of 10A2
*0930	T=90	Site area emergency declared. Evacuation of non- essentials from site. Subsequent activation of siren system (simulated)
*1040	T=160+	"A" DG repaired and started. 10A and 10A1 energized.
1100	T=180	Inner-system Loca to RHR system
1110	T=190	RHR valve 8887B ruptures. Leak to West Pen and environment commences
*1120	T=200	General Emergency declared. Evacuate downwind sectors.
1120	T=200	Report of two (2) injured and contaminated personnel in the West Pen area. Dispatch First Aid Team
*1140	T=220	First Aid Team request transport of one contaminated victim to Richland Memorial Hospital
*1145	T=225	TSC implements EPP-009, "Onsite Medical
*1300	T=300+	Tie breaker in XSW 10X 03 repaired. Close RHR suction. Release terminated
1330	T=330+	Exercise terminated

* Approximate times