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Report Nos.: 50-261/91-26

Licensee: Carolina Power and Light Company
P. O. Box 1551
Raleigh, NC 27602

Docket Nos.: 50-261

License Nos.: DPR-23

Facility Name: H. B. Robinson

Inspection Conducted: November 18-22, 1991

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SUMMARY

Scope:

This routine, announced inspection included observation and evaluation of the annual emergency preparedness exercise. Emergency response activities were selectively observed including: the Exercise Control Room (ECR); the Technical Support Center (TSC); the Operational Support Center (OSC); the Emergency Operations Facility (EOF); the Joint Information Center (JIC); the onsite Fire Brigade; and damage control teams. The inspection also included a review of the exercise objectives and scenario, as well as observation of the licensee's post-exercise critique activities. The exercise was a partial-scale exercise with limited participation by the State of South Carolina and full participation by local emergency response agencies. The exercise was conducted on November 20, 1991, between the hours of 8:30 a.m. and 1:00 p.m.

Results:

In the areas inspected, one potential repeat violation and four exercise weaknesses were identified. The violation addressed the failure to correct weaknesses from the 1989 and 1990 emergency exercises as well as a violation resulting from the September 11, 1990, toxic gas release event which also cited inadequate corrective actions for the failure to properly classify emergency events (Paragraph 5). The four exercise weaknesses were identified as follows: Failure to provide complete information regarding the simulated emergency to State and local governments (Paragraph 6); Failure to demonstrate the formulation of protective action recommendations (Paragraph 10); Failure to demonstrate adequate assessment of radiological releases (Paragraph 9); and Failure to demonstrate the ability to conduct damage control activities in a timely manner (Paragraph 8.c). Noted exercise strengths included an effective and thorough self-critique, excellent command and control exhibited by the Emergency Response Manager including the interface with the State, thorough management turnovers between the ECR/TSC and the TSC/EOF, efficient setup and staffing of the EOF, implementation of good health physics practices related to the PORV damage control team, and effective route planning for emergency personnel moving between facilities.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*R. Barnett, Manager, Outages and Modifications
*R. Chambers, Plant General Manager
*W. Christensen, Supervisor, Environmental and Radiation Control
*C. Dietz, Vice President, Robinson Nuclear Project
*D. Dixon, Manager, Control and Administration
*T. Dunn, Communications Specialist, Corporate Emergency Preparedness (EP)
*J. Eaddy, Supervisor, Environmental and Radiological Control
*J. Farrar, Director, Energy Education
*W. Gainey, Manager, Plant Support
*M. Gann, Specialist, Emergency Preparedness
*A. Garrou, Project Specialist, Corporate EP
*R. Goodwin, Project Specialist, Corporate EP
*R. Indelicato, Manager, Corporate Emergency Preparedness
J. Kloosterman, Manager, Regulatory Compliance
*M. Morrow, Senior Specialist, Emergency Preparedness
*M. Page, Manager, Technical Support
*A. Padgett, Manager, Environmental and Radiation Control
*R. Smith, Manager, Maintenance
*D. Taylor, Manager, Materials and Contract Services
*L. Williams, Manager, Emergency Preparedness and Security

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

Nuclear Regulatory Commission

*L. Garner, Senior Resident Inspector
*E. Fox, Senior Emergency Preparedness Inspector, NRR

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 organizations as required by 10 CFR 50.47(b)(14), 10 CFR 50, Appendix E, Paragraph IV.F, and the specific criteria in NUREG-0654, Section II.N.

The exercise scenario package including the exercise objectives was provided to NRC approximately 45 days in advance of the exercise and was discussed with licensee representatives prior to the onsite exercise. The

inspector's review of the scenario prior to the exercise revealed no significant technical inconsistencies. During the exercise, the inspector noted appropriate interactions between the controllers and players, and no prompting was observed.

Although the scenario was considered acceptable, the following items were noted and discussed with the licensee: (1) Overall, the scenario was short in duration (approximately 4.25 hours) and relatively non-complex with respect to affected equipment and the scenario of events; (2) A fifteen minute delay was factored into the scenario during play due to the failure to declare the Alert; rather than issuing the contingency message as provided for in the scenario package. Subsequently, the inspector noted that information, although limited, was apparently received in the ECR based on the original scenario timeline; (3) The General Emergency declaration was delayed for 15 minutes by the controller in order to meet the original scenario timeline. However, some dose assessment information supporting the declaration had already been communicated to the State. This discrepancy was observed to cause some problems and confusion with the State; (4) The contingency message issued for the PAR circumvented the licensee's development of a second PAR. The scenario, even with the dose assessment inaccuracies, would have supported the upgraded PAR; and (5) The scenario did not adequately support the use of the Motor Operated Valve (MOV) mockup.

The problems cited in this paragraph appeared to detract from the exercise and in some instances, may have contributed to the performance weaknesses noted elsewhere in this report. The inspector informed the licensee that this issue would be tracked as an Inspector Followup Item (IFI).

IFI 50-261/91-26-01: Improve exercise scenario control and coordination including the length and complexity.

The inspector noted that the licensee did not use the simulator for the exercise, instead; the ECR was established and paper messages were used to distribute plant parameters. The inspector discussed the positive training aspects associated with the simulator and encouraged its use in the future.

The attachment to this report documents the licensee's exercise objectives and presents a narrative summary of the scenario timeline.

No violations or deviations were identified.

3. Onsite Emergency Organization (82301)

This area was observed to determine 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 50.47 (b)(2), 10 CFR 50, Appendix E, Paragraph IV.A, and the specific criteria in NUREG-0654, Section II.A.

Through a review of the licensee's Emergency Plan and Implementing Procedures, the inspector determined that the initial onsite emergency organization was adequately defined and that primary and alternate assignments for the positions in the augmented emergency organization were clearly designated. During the exercise the inspector observed that staff members were available to fill key functional positions within the initial onsite emergency organization. Augmentation of the initial organization was accomplished through the mobilization of additional day shift personnel. During the course of the exercise, facility managers discussed and simulated preparations for long term staffing; however, because of the scenario scope and objectives, continuous staffing of the emergency response facilitates was not required. Minor problems associated with the EOF staffing plan were identified by the licensee's critique process; however, staffing arrangements for the other facilities appeared satisfactory. The inspector noted that this process was implemented effectively particularly in the OSC where long-term staffing considerations were discussed very early on in the scenario timeline.

The inspector discussed with licensee representatives the staffing for the position of the Radiological Control Manager in the EOF. The licensee stated that this position as well as associated support positions are staffed using personnel from the Corporate Office in Raleigh. Until arrival of the Corporate staff, onsite personnel fill the role of Radiological Control Manager in order to meet EOF activation requirements; however, the dose assessment function remains a responsibility of the TSC until EOF staffing from the Corporate Office is complete. The Raleigh personnel for this exercise were pre-staged in Hartsville; therefore, their actual response time was not tested. The inspector observed that the dose assessment function was fully transferred from the TSC at 11:43 a.m., approximately 49 minutes after official EOF activation. The inspector concluded that this staffing process was conducted in accordance with the licensee's Emergency Plan.

The inspector also observed the participation of "assistants" to the Emergency Response Manager (ERM) and the Site Emergency Coordinator (SEC) in the exercise, although these positions are not specifically delineated in the Emergency Plan. The positions were staffed by a qualified ERM and SEC, and served to support the facility managers in the performance of their duties, including assumption of the manager positions when the primary ERM or SEC was absent from the facility. The inspector observed that the integration of these personnel into the response organization during the exercise was effective, and no concerns were noted.

The inspector noted activation, staffing, and operation of the emergency organization in the TSC, OSC, EOF, and JIC. At each response facility the required staffing and assignment of responsibility was consistent with the licensee's approved Emergency Plan and Implementing Procedures.

No violations or deviations were identified.

4. Emergency Response Support and Resources (82301)

This area was observed to determine whether arrangements for requesting and effectively using assistance resources were made, that arrangements to accommodate State and local staff at the EOF were made, and whether other organizations capable of augmenting the planned response were identified as specified by 10 CFR 50.47(b)(3), Paragraph IV.A of Appendix E to 10 CFR Part 50, and the guidance promulgated in Section II.C of NUREG-0654.

The inspector confirmed that the licensee had made adequate provisions in the Emergency Plan for interfacing with Federal and State response organizations. During the exercise, activities related to the Federal interface were not observed beyond notification; however, functionally the licensee appeared prepared for an onscene response. During observation of activities in the EOF, the inspector noted the licensee's awareness of the Federal Radiological Emergency Response Plan and that this interface was factored into response discussions. Licensee involvement and contact with State and county organizations occurred in accordance with applicable Emergency Plan procedures. Although the State of South Carolina did not send a liaison to the EOF for this exercise, adequate provisions have been made for accommodating State responders in the Room 132 of the EOF.

Assistance resources from offsite support agencies such as fire, hospital, and ambulance services were not observed

during this exercise; however, the inspector noted that appropriate provisions existed in the Emergency Plan and procedures for acquiring these resources if needed.

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 recommended in NRC Information Notice 83-28.

The inspector verified that Plant Emergency Procedure (PEP)-101, Initial Emergency Actions, Revision 3, dated January 18, 1991, had been established to support the emergency classification process. The classification guidance, in the form of a logic flowchart, appeared adequate and contained the elements required by NUREG-0654.

With the exception of the initial classification of the fire, emergency declarations were made appropriately by decisionmakers based on the information available to them. The Alert was declared by the Shift Supervisor (SS) at 9:26 a.m. based on primary to secondary leakage greater than 50 gallons per minute (gpm). The Site Area Emergency was declared by the SEC at 10:38 a.m. based on a primary to secondary leakage greater than 50 gpm coincident with a stuck open power operated relief valve (PORV). The General Emergency was initially declared by the SEC at 11:19 a.m. based on a projected thyroid dose of 19 Rem, although this information was incorrect as discussed in Paragraph 9.

The initiating event for the scenario was a fire in the Component Cooling Water (CCW) Pump Room. As contemplated by the scenario developers, a declaration of an Alert was expected for the simulated event based on the EAL, Fire has potential to affect safety equipment. However, the SS declared a Notification of Unusual Event utilizing the EAL, Fire lasting greater than 10 minutes.

Upon initiation of the fire at 08:46 a.m., the ECR staff recognized that the "A" CCW Pump and "A" Charging Pump were not safety related and surveyed the control boards for indicators of damage to safety related equipment. When damage to such equipment was not confirmed, the NOUE was declared. The inspector noted that the classification assessment process appeared to be inappropriate in that the evaluation was based on the lack of observable damage rather than the potential for damage. The inspector further noted,

that when the NOUE was declared, the fire had not been extinguished or fully characterized by the ECR staff; therefore, the true magnitude or potential to affect the nearby "B" and "C" CCW pumps or the cabling directly above was not fully known. The ECR staff was not observed to request a local damage assessment until approximately 6 minutes after extinguishing the fire (12 minutes after NOUE declaration).

The inspector discussed with licensee representatives in detail the circumstances involved with the missed classification. The licensee stated that the quick response by the fire brigade and an apparent interpretation error by the ECR staff indicating that the "Fire was on the A CCW Pump" rather than "in the area of the A CCW Pump" may have contributed to the misclassification. However, the intent of the EAL, Fire has potential to affect safety equipment, does not require actual damage to equipment, and due to the close proximity of safety related equipment to the simulated fire, the EAL was clearly satisfied.

In addition, the inspector reviewed the guidance available to the SS in making classification decisions. Operations Management Manual Procedure (OMM)-031, Revision 3, dated September 13, 1991, provides interpretations for emergency classification. Although this procedure does not provide explanatory guidance for classification of fires at the Alert level, the inspector noted that Site Emergency Coordinator Training Module, EP-LP-02, stated that "If the fire is in the same fire zone (room) as a safety related component, then it has the potential to affect the equipment" [unless the fire is determined to be incipient]. The inspector noted that the interpretation presented in this document was consistent with regulatory guidance, and was consistent with the conditions postulated during the exercise for the Alert condition.

Based on the above, the inspector informed licensee representatives that the failure to identify the simulated fire as an Alert emergency condition was an Exercise Weakness. However, because exercise weaknesses related to the failure to properly classify emergency events had been identified during the 1989 (NOUE) and 1990 (General Emergency) exercises, the inspector determined that the failure to correct these weaknesses during the 1991 exercise was an apparent violation of 10 CFR 50, Appendix E, Section IV.F.5. In addition, a similar violation for inadequate corrective actions on a weakness identified during the 1989 exercise was cited for the September 11, 1990, toxic gas release event resulting from the failure to properly recognize an actual emergency Alert condition.

Repeat Violation 50-261/91-26-02: Failure to demonstrate adequate corrective action for previously identified exercise weaknesses regarding the inability to properly classify emergency events.

One violation was identified.

6. Notifications Methods and Procedures (82301)

This area was observed to determine that procedures had been established for notification by the licensee of State and local response organizations and emergency personnel, and the content of initial and followup messages to response organizations had been established; and a means to provide early notification to the population 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 the specific criteria in NUREG-0654, Section II.E.

The inspector reviewed the licensee's procedures for providing emergency information to Federal, State, and local response organizations, and for alerting and mobilizing the licensee's augmented emergency response organization. The inspector noted that PEP-171, Emergency Communicator and Staff, Revision 26, dated August 22, 1991, had been established and appeared adequate to provide guidance to personnel responsible for initial notification and continuing communications.

During the exercise, the inspector observed that notifications to the State and local governments as well as the NRC were completed by ECR, TSC, and EOF personnel in a timely manner. Notifications of the State and local governments and NRC were initiated by the appropriate plant personnel within 15 minutes and one hour, respectively, following the declaration of each emergency class. In addition, formal updates were completed at the required frequency.

Although the notifications to the State and local governments and NRC were observed to be timely, the inspector noted that the information contained on the emergency message forms which were ultimately transmitted to these groups were often incomplete and did not always contain the required information for offsite authorities. Most significantly, after transmission of Message #4 at 10:46 a.m., the three following emergency messages to State and local governments did not contain radiological release information and dose projections, even though a release was occurring. The licensee did not provide this information until transmission of Message #8 at 12:51 p.m., approximately 2 hours and 5 minutes later. In addition,

Message #6, notifying the State and locals of the General Emergency, described that the declaration was based on a thyroid dose projection at the site boundary of 19 Rem but did not provide the range of dose projections for the 10-mile EPZ nor the plant conditions which led to the emergency upgrade. The plant conditions associated with the General Emergency were never transmitted to the State and local governments during the course of the exercise.

Other items associated with the emergency messages noted by the inspector included: Failure to provide transmission time on NRC Messages #3, #4, and #5; Message #2 to the State/locals contained conflicting information on reactor shutdown status and did not contain time of airborne release initiation; Message #7 to the State/locals did not contain reactor status, PAR information or meteorological information; and Message #8 transmitting dose projection information did not provide any explanation or clarification for the unusually high values.

Based on the observations discussed above, the licensee was informed that the failure to demonstrate Exercise Objective B.3 for providing emergency information to State and local governments was an Exercise Weakness for which corrective actions are required.

Exercise Weakness 50-261/91-26-03: Failure to provide complete information regarding the simulated emergency to State and local governments, as required.

The inspector also observed the licensee's implementation of notification of onsite and augmentation personnel utilizing the plant public address system (PA) and personal pagers. Facility activation announcements and pages were implemented as appropriate. The inspector noted that several of the EOF staff members did not respond to the emergency page and had to be notified individually by telephone; however, overall response and staffing goals for the facility were not impacted due to need for the personal notifications.

The Alert Notification System (ANS) for alerting the public within the plume exposure pathway emergency planning zone (EPZ) was actuated during this exercise. As a result of a post-exercise survey in Chesterfield County, initial information provided indicated that several sirens in the County did not sound during the exercise. Because the licensee had recently performed a full cycle test of the ANS demonstrating greater than 90% operability and demonstration of the ANS was not required for this exercise, FEMA did not identify the potential failure in Chesterfield County as an offsite deficiency. The licensee was continuing to evaluate the circumstances surrounding the potential failure;

however, later information from FEMA indicated that the apparent failures may have been due to flaws in the survey process instead of actual siren inoperability. FEMA certifies the ANS system and is working to resolve any potential problems with the licensee

No violations or deviation 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 the specific criteria in NUREG-0654, Section II.F.

The inspector observed that adequate communications capability existed among the licensee's emergency organizations, and between the licensee's emergency response personnel and offsite authorities.

The inspector did not note any significant problems with the communications equipment utilized during the exercise. Backup systems were not required to be implemented. However, due to the use of the ECR which did not have an Emergency Notification System telephone and the use of CP&L personnel to simulate the NRC Operations Center, commercial telephone was used to notify NRC. No concerns were noted with the use of this methodology and the licensee fully demonstrated the use of the equipment. Minor problems were observed in the ECR with respect to the facsimile which is used to supplement verbal communications to the State and locals. These problems did not impact the ECR staff's ability to complete timely notifications.

Radio communications with the fire brigade and environmental monitoring teams were observed to be effective with no interference identified. In addition, the inspector observed satisfactory communications with the inplant chemistry team utilizing the plant public address system.

The licensee did not employ the use of the Emergency Response Facility Information System (ERFIS) during the exercise. Although the licensee utilized paper messages to supply plant parameter data in the ECR, TSC, OSC, and EOF, exercise participants were required to "earn" the paper data by adequately demonstrating the ability to access ERFIS. No problems with ERFIS demonstration were noted with the exception of the OSC. For reasons not identified by the inspector, the OSC staff were unable to access the ERFIS system; however, upon demonstration of the ability to

acquire emergency data from the TSC via facsimile, the OSC was ultimately provided plant information directly from the exercise controllers.

No violations or deviations were identified.

8. 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 the specific criteria in NUREG-0654, Section II.H.

The inspector observed activation, staffing, and operation of the emergency response facilities including the Exercise Control Room, TSC, OSC, EOF, and JIC. In addition, the inspector observed the fire drill and the PORV repair team activities.

a. Control Room

The Control Room used for the exercise was a simulated Exercise Control Room (ECR) housed in one of the exterior rooms of the TSC. The facility was configured with communications, procedures, and mock control boards to simulate, as closely as possible, the actual Control Room. The SS assigned to the exercise assumed the duties of SEC promptly upon initiation of the simulated emergency. With the exception noted in Paragraph 5, the SS demonstrated a clear understanding of the Emergency Plan requirements and his role as Site Emergency Coordinator. The SS demonstrated effective command and control of the ECR staff, and after turnover of SEC responsibility to the TSC, he continued to maintain management of ECR activities and priorities.

A particular strength was noted by the inspector regarding the turnover of SEC responsibilities to the TSC. This process was considered to be excellent, and the detailed and specific use of the turnover checkoff list by the SS coupled with the use of the conference call feature of the telephone system enabled TSC personnel to be thoroughly knowledgeable of plant conditions and ongoing activities at the time of TSC activation.

b. Technical Support Center (TSC)

The inspector observed the incorporation of the TSC into the Protected area prior to the initiation of the exercise. No concerns were noted regarding this process, and security was posted outside the TSC throughout the exercise to maintain the required double contingency.

The TSC was declared operational approximately 47 minutes after the Alert classification. As discussed previously, the turnover of the SEC functions was accomplished in an outstanding manner and provided for a smooth transition of responsibility. The facility staff appeared cognizant of their duties, authorities, and responsibilities, and demonstrated knowledge of the Emergency Plan and Implementing Procedures. The SEC maintained a clear understanding of the plant status and ongoing events during the exercise. Repair priorities were appropriately established by the SEC; however, these actions were not always implemented in a timely manner. This area is discussed further in Paragraph 8.c.

The SEC was clearly in charge of TSC activities, and staff briefings were conducted appropriately. Status boards and other graphical aids were maintained throughout the exercise by support personnel, and generally contained information appropriate to the scenario sequence of events.

The following items were brought to the licensee's attention for program improvement:

- Consider using the public address system to broadcast TSC management briefings to personnel in the exterior work areas.

- Key plant and system parameters were not always displayed on TSC status boards. This information included: core damage assessment, projected source term, and the reinsertion of the control rods.

c. Operational Support Center (OSC)

The OSC was activated approximately 21 minutes after the Alert declaration. The OSC was located in the Maintenance Shop outside of the Protected Area adjacent to the east security entrance. Licensee representatives stated that plans were in place to move the OSC into the Protected Area following completion of the new Maintenance Shop projected for 1992.

In general, the staffing for the OSC was timely and no prestaging of personnel was noted. The inspector observed, however, that the OSC sign-in process appeared cumbersome and resulted in formation of a very long line for entering personnel. Overall, the transition into OSC activation was satisfactory, and command and control in the OSC was considered adequate. The OSC leader provided periodic briefings to facility personnel and communicated well with his direct staff. However, the inspector observed that the OSC Leader spent little time in the main work area, thus, potentially limiting his first hand knowledge of implementation of priority directives.

After activation of the OSC only three damage control teams were dispatched into the field, and significant time delays were noted in initiating the missions. At 10:30 a.m. the TSC clearly established and communicated the three priority damage control actions to the OSC; however, the following was observed by the inspector:

- The PORV Team was not dispatched from the OSC until 11:40 a.m. (Number one priority) - 1 hour and 10 minutes.

- The Steam Dump Team was not dispatched until 12:13 p.m. (Number two priority) - 1 hour and 43 minutes.

- The CCW Pump Clearance Team was not dispatched until 11:25 p.m (Number 3 priority) - 55 minutes.

- The Loose Parts Monitor Team was never dispatched, as contemplated by the scenario, even though the monitor alarm was injected into the exercise early at the Site Area Emergency.

- The CCW Pump Motor Repair Team was canceled due to the lack of health physics support.

Factors contributing to the delay in team dispatch appeared to be changing radiological conditions; and poor coordination of team members for preparation, muster, and briefings. The problems associated with the damage control teams were identified, in the aggregate, to the licensee as an Exercise Weakness for which corrective actions are required.

Exercise Weakness 50-261/91-26-04: Failure to demonstrate the ability to conduct damage control activities in a timely manner.

A strength of the OSC operation was noted regarding radiological considerations. Habitability monitoring was initiated early and continued throughout the exercise based on changing plant radiological conditions. In addition, radiation controls were effectively factored into the routing of personnel from the TSC to the OSC as well as briefings for the damage control teams. However, the inspector noted that the health physics resources were depleted during the exercise. Although only one damage control team was affected, a more complex accident mitigation process may have been adversely affected by the lack of available health physics technicians. The licensee also recognized the depletion of HP resources in its critique.

d. Emergency Operations Facility (EOF)

The EOF was activated approximately 51 minutes following the decision to staff the facility. The EOF is not a dedicated facility and requires reconfiguration during an emergency. The inspector observed the setup and staffing of the facility to be very efficient and in accordance with procedures. Turnover of management responsibilities from the TSC to the EOF was also noted to be efficient and thorough. With the exception of those implementation problems discussed elsewhere in this report, the facility staff appeared knowledgeable and familiar with their duties, authorities, and emergency responsibilities. The command and control exhibited by the ERM was excellent and considered a strength of the exercise. In addition, the interface with the State was observed to be effective. The inspector observed EOF activities including: recovery discussions, request for additional resources; Environmental Monitoring Team preparation; PAR development; and dose assessment upon its transfer from the TSC.

The EOF was provided with adequate equipment to support the assigned staff. Status boards and other graphical aids were strategically located and generally maintained appropriately. Security and access control were observed to be appropriately established and maintained throughout the exercise.

e. Joint Information Center (JIC)

The JIC used for the exercise was the CP&L District Office in Florence, South Carolina. This was the first time this facility had been activated during an annual exercise, and it has not yet been accounted for in the Emergency Plan.

The JIC was activated approximately 57 minutes following declaration of the Site Area Emergency. The JIC positions were staffed with personnel as designated on the emergency response roster. Prior to JIC activation the Headquarters Communications Center maintained responsibility for the conduct of public relations activities (Not observed by NRC). Activities at the JIC included the issuance of five simulated news releases and the conduct of joint State and licensee news conferences. The inspector observed good coordination between the licensee and State related to the issuance of press releases and the conduct of media briefings; however, coordination was viewed to be hampered due to the short duration of the exercise scenario. Media briefings were observed to be adequate, and the supporting visual aids were good.

The inspector noted that the work areas and resources designated for the State, licensee, and NRC were adequate to support an emergency response. However, the media work area was considered marginally acceptable. Specifically, the location of media work area and media monitor (broadcast of television coverage) has a significant potential for noise interference with ongoing press briefings due to the lack of sound barrier protection. The inspector further noted that the press work area only had five permanent telephones installed, and no agreements or plans were in place to acquire additional communications during emergencies. The inspector discussed with licensee representatives the need to establish a mechanism for acquiring additional communications such that the quantity and timeliness of installation would be understood. Licensee representatives were informed that this area would be tracked as an Inspector Followup Item.

IFI 50-261/91-26-05: Evaluation of the resources available to media personnel in the media work area as well as the potential impact of the media work area location on the conduct of press briefings.

The following areas were identified to the licensee for program improvement:

- The initial press release issued at 10:26 a.m. did not highlight that the site was in an Alert emergency condition nor did it provide information regarding the fire in the CCW Pump Room.

- In response to media questions regarding the significance of the 19 Rem dose projection, licensee response personnel characterized the release based on 10 CFR Part 100 requirements rather than the associated health hazards.

f. Fire Drill

The inspector observed the initial response and mitigation activities associated with the simulated fire in the CCW Pump Room. The fire brigade's efforts were both timely and effective. The response to the initial fire alarm was approximately within minutes and arrival of the On-scene Commander and other fire brigade members immediately followed. Fire Brigade members demonstrated a knowledge of the location of nearby response equipment as well as the donning and use of respiratory equipment and turnout gear.

On-scene command and control appeared effective, and good communications between the On-scene Commander and the fire brigade members were exhibited. The inspector noted that health physics and security support were adequate to support the fire fighting efforts.

No violations or deviations were identified.

9. Accident Assessment (82301)

This area was observed to assure that 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 the specific criteria in NUREG-0654, Section II.I.

The accident assessment program reviewed by the inspector included an engineering assessment of plant status and an assessment of radiological hazards to both onsite and offsite personnel resulting from the simulated accident. Engineering and core damage assessments were adequately performed in the TSC; however, one area was brought to the licensee's attention for program improvement: Exercise

participants stated that the necessary publications and schematics were not available in the accident assessment area for use during the exercise. The licensee should consider incorporation of the needed reference materials, as feasible, to facilitate the assessment process.

The inspector observed the conduct of dose assessment activities in both the TSC and EOF. Initially, dose assessment was performed in the TSC; however, upon activation of the EOF and arrival of Corporate response personnel, this function was transferred to the EOF. After activation of the EOF dose assessment function at 11:43 a.m., the TSC continued to provide support, particularly with respect to source term determination.

Initial dose projections performed by the TSC appeared appropriate and consistent with procedure. Specifically, the inspector observed the performance of a dose calculation at 10:45 a.m. which confirmed that the licensee was appropriately in a Site Area Emergency situation. However, subsequently, the dose assessments appeared to be formulated without incorporation of appropriate plant conditions resulting in erroneously high offsite dose values.

At approximately 11:15 a.m., an R-31A main steam line radiation monitor alarm was received indicating approximately 16 mR/hr (no core damage). The dose projection using this monitor reading was formulated based on the PORV with full steam generator pressure; however, in accordance with the scenario, the steam generator was approaching dryness which required the use of a much reduced PORV flow rate. The resultant dose projection of 19 Rem thyroid was falsely high indicating a General Emergency rather than, appropriately, a Site Area Emergency. Although the conservativeness associated with the dose projection surrounding the General Emergency declaration was ultimately recognized by TSC management, the information was not provided to the dose assessment staff for refinement of projected dose information.

In addition, subsequent to the General Emergency declaration, dose assessments performed were also based on incorrect PORV flow rates, the origin of which could not be identified by the inspector. The dose projections using the incorrect PORV flow rates resulted in erroneously high assessments (up to 10,000 Rem) throughout the remainder of the exercise. The inspector observed that personnel in the EOF recognized that the dose projections were not reasonable based on the results of environmental monitoring data; however, no resolution regarding the errors was determined

during the exercise. The discrepancy between the dose projections and the field monitoring data led to confusion at the EOF as well as the State.

Examination of the dose projection computer model used by the licensee confirmed that it contained the flexibility to adjust the flow rate for the PORV based on actual plant conditions. However, the apparent inadequate interaction between health physics and plant systems resulted in the failure to perform realistic dose assessment based on an accurate characterization of plant conditions. Based on these observations, the inspector informed the licensee that the failure to adequately demonstrate Exercise Objective C.7 was an Exercise Weakness for which corrective actions are required.

Exercise Weakness 50-261/91-26-06: Failure to demonstrate adequate assessment of the radiological consequences of the simulated accident (dose assessment).

The activities of onsite and offsite radiological monitoring teams were not directly observed by the inspector. However, communications with and direction of the Environmental Monitoring Teams from observation in the EOF appeared adequate.

In addition to the above, the inspector discussed the following areas for program improvement with the licensee:

- Environmental monitoring data was not posted in either the TSC or the EOF for easy accessibility by management and technical staff members.

- Dose projection information was not posted in the TSC or EOF as frequently as they were performed. Only two dose projections were posted in each of the facilities during the exercise.

No violations or deviations were identified.

10. 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 the specific criteria in NUREG-0654, Section II.J.

The inspector reviewed PEP-105, Emergency Control - General Emergency, Revision 20, dated November 30, 1990, to verify that adequate guidance was provided for the formulation of offsite protective action recommendations (PARs). The inspector noted that the PAR logic flowchart provided adequate guidance for the decisionmaking process and was consistent with Agency guidance incorporating decision tree logic based on plant conditions as well as dose projections.

At the General Emergency declaration, PARs were developed by the EOF within 15 minutes, as required. Although a PAR decision was reached, the methodology used to develop the PAR was observed to be incorrect. The inspector noted that the formulated PAR was based on plant status (i.e., substantial core damage indicated and/or release of fission products to containment), rather than on the 19 Rem thyroid dose assessment value. Due to the premature declaration of the General Emergency based on dose assessment (see Paragraph 9), core damage was not indicated at the time of PAR development. The inspector determined that the plant conditions used in the PAR development were not applicable at the time of the decision, and the licensee inappropriately implemented Note 1 and/or 2 of the PAR flow diagram. This problem was also identified during the licensee's self critique.

In addition, the opportunity to upgrade the PAR when core damage was actually indicated in the scenario was circumvented by the exercise controllers. Because the initial PAR developed did not coincide with that required by offsite agencies to demonstrate their exercise objectives, the exercise controller injected a contingency message prior to issuance of the initial PAR to the State. The State ultimately expanded the scope of the PAR to encompass the 10-mile EPZ; therefore, the licensee exercise participants were not afforded the opportunity to redemonstrate their ability to develop PARs appropriately. The failure to demonstrate adequately Exercise Objective C.5 was identified to the licensee as an Exercise Weakness for which corrective actions are required.

Exercise Weakness 50-261/91-26-07: Failure to fully demonstrate the formulation of protective action recommendations.

Accountability and evacuation of onsite non-essential personnel was not an objective of this exercise. All actions related to these processes were simulated. The licensee adequately demonstrated accountability and onsite evacuation during the 1990 annual exercise. Other protective response activities observed by the inspector included simulated use of potassium iodide by inplant and

environmental teams, and the demonstration of the use respirators and protective clothing.

No violations or deviations were identified.

11. Exercise Critique (82301)

The licensee's critique of the emergency exercise was observed to determine the 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.5, and specific criteria in NUREG-0654, Section II.N.

The licensee conducted player critiques in each emergency response facility immediately following the exercise. On November 21, 1991, the licensee also conducted evaluator/controller critiques in preparation for the formal presentation to facility management on the following day. The inspector observed the critique process to include a review of the exercise objectives for each functional area. In particular, the critique involving the lead controllers/evaluators from each facility resulted in a detailed presentation of positive findings/strengths, substantive areas requiring corrective actions, and areas needing improvement. Frank and constructive discussions based upon observation and knowledge of the plant and procedures resulted in a comprehensive summary of exercise performance.

The licensee's critique, in general, identified the exercise weaknesses highlighted in the details of this report. In addition, the licensee identified several areas of concern not directly observed by NRC evaluators. These areas include:

- Ability to provide radiological services such a dosimetry and personnel monitoring. The problems in this area were primarily related to health physics support to the Auxiliary Operators and dose tracking for individuals moving between response facilities.

- Ability to control the spread of contamination. This area was identified during the removal of the fire hose from the CCW Pump Room/Radiological Control Area.

- The failure to release additional emergency information to the media following the conduct of the General Emergency press conference.

- Inappropriate operational assessment performed by the TSC. The licensee identified two areas of concern: direction to feed the faulted steam generator; and the recommendation to manually initiate a safety injection.

The inspector observed that the licensee's critique items, including those discussed above, were appropriately documented and characterized for licensee management. The licensee's actions on the identified items will be reviewed in detail during future inspections. Overall, the licensee's critique process for this exercise was observed to be probing, detailed, and effective, and was considered a strength of the licensee's emergency preparedness program.

Licensee corrective actions on previously identified exercise weaknesses and areas for improvement were considered lacking as exemplified by recurrent problems related to emergency classification and dose assessment. In general, the licensee's performance during the last three annual emergency exercises have resulted in various concerns by NRC. This performance trend will be discussed during the upcoming Enforcement Conference.

No violations or deviations were identified.

12. Federal Emergency Management Agency (FEMA) Report

A report on FEMA's evaluation of offsite preparedness will be issued at a later date and will be provided by NRC under a separate transmittal.

13. Exit Interview

The inspection scope and results were summarized on November 22, 1991, with those persons indicated in Paragraph 1. The Exercise Team Leader described the areas inspected and discussed in detail the inspection results listed below. In addition, the inspector reviewed those areas perceived as exercise strengths and areas for program improvement. Licensee management committed to evaluate the overall exercise performance and provide planned corrective actions to NRC on or about December 2, 1991. Although dissenting comments were not received from the licensee, licensee management indicated that a thorough evaluation of the circumstances regarding the missed classification would be pursued. Although proprietary information was reviewed during this inspection, none is contained in this report.

On November 27, 1991, the licensee was informed that NRC was requesting that an Enforcement Conference be held to discuss the apparent repeat violation as well as the other 1991 exercise weaknesses, the licensee's self-assessment of the emergency preparedness program, root cause analysis, and corrective actions to preclude problems in the future. The Enforcement Conference is scheduled for December 20, 1991, at 1:00 p.m. in the NRC Region II Office.

Item Number	Description and Reference
50-261/91-26-01	IFI - Improve exercise scenario control and coordination including the length and complexity (Paragraph 2).
50-261/91-26-02	Repeat Violation - Failure to demonstrate adequate corrective actions for previously identified exercise weaknesses regarding the inability to properly classify emergency events (Paragraph 5).
50-261/91-26-03	Exercise Weakness - Failure to provide complete information regarding the simulated emergency to State and local governments, as required (Paragraph 6).
50-261/91-26-04	Exercise Weakness - Failure demonstrate the ability to conduct damage control activities in a timely manner (Paragraph 8.c).
50-261/91-26-05	IFI - Evaluation of the resources available to media personnel in the media work area as well as the potential impact of the media work area location on the conduct of press briefings (Paragraph 8.e).
50-261/91-26-06	Exercise Weakness - Failure to demonstrate adequate assessment of the radiological consequences of the simulated accident/dose assessment (Paragraph 9).
50-261/91-26-07	Exercise Weakness - Failure to fully demonstrate the formulation of protective action recommendations (Paragraph 10).

Objectives

ROBINSON NUCLEAR PROJECT EXERCISE OBJECTIVES

A. Operational Assessment

1. Demonstrate the ability of the Control Room to detect accident conditions, assess and project radiological consequences, and formulate near term mitigating actions.

2. Demonstrate the adequacy of the Technical Support Center in providing accident assessment and mitigation, dose assessment, and communication/notification activities.

3. Demonstrate the ability to identify and properly classify the emergency in accordance with the Emergency Plan and Implementing Procedures.

B. Communications

1. Demonstrate the adequacy of procedures for alerting, notifying, and mobilizing Emergency Response Organization Personnel.

2. Demonstrate the timeliness of initial and follow-up notifications to responsible state and local government agencies.

3. Demonstrate the adequacy of the information provided to responsible state and local government and agencies in the initial and follow-up notifications.

4. Demonstrate the capability to make timely and accurate notifications to the Nuclear Regulatory Commission. (Actual participation of the NRC Operations Center may be simulated.)

5. Demonstrate the ability to effectively communicate with plant emergency teams and company environmental monitoring teams.

6. Demonstrate the ability to communicate between emergency response facilities.

C. Radiological and Chemical Assessment

1. Demonstrate the ability to support the radiological assessment process while maintaining personnel radiation exposure as low as reasonably achievable (ALARA).

2. Demonstrate the capability to perform radiological monitoring activities and assessment.

3. Demonstrate the ability to provide adequate radiation protection services such as dosimetry and personnel monitoring.

4. Demonstrate the ability to adequately control the spread of contamination and the radiological exposure of on-site and off-site emergency workers.

5. Demonstrate the ability to formulate appropriate protective action recommendations to off-site government authorities.

6. Demonstrate the activation, operation, and reporting of field monitoring teams.

7. Demonstrate the assessment of radiological consequences of the accident and of any releases of radioactive material to the environment.

D. Emergency Response Organization and Facilities

1. Demonstrate the ability to augment the on-shift emergency organization within the time limits specified within the Emergency Plan and its implementing procedures (normal working hours).

2. Demonstrate that the Technical Support Center, Operational Support Center, and the Emergency Operations Facility can be activated in accordance with the Emergency Plan and its implementing procedures.

E. Public Information

1. Demonstrate the ability to coordinate news releases and other public information between CP&L and off-site government authorities.

2. Demonstrate the ability to coordinate the preparation, review, and release of information for the news media.

3. Demonstrate the ability to control rumors in accordance with the public information procedures.

4. Demonstrate the ability to prepare for and conduct adequate briefings concerning plant events for the media.

F. Fire Brigade

1. Demonstrate proper response by the fire brigade to the type of fire chosen for the exercise.

Scenario

ROBINSON 1991 EXERCISE SCENARIO NARRATIVE

At 0830 EST on November 20, 1991, Robinson Unit 2 is at 100% power, late in core life, and the RCS activity is normal. At 0846, a small fire in the CCW Heat Exchanger Room occurs at the "A" CCW Pump. At 0853 the dedicated shutdown power supply (a power supply in addition to the two safety related power supplies) will fail as a result of the fire, removing the "A" CCW Pump and "A" Charging Pump power supplies.

An Alert should be declared around 0900 based upon a fire with potential to affect safety related equipment. The fire will be successfully extinguished by the plant fire brigade and offsite fire assistance will not be required.

At 0915 a 70 gpm primary to secondary leak is ramped in to the "A" Steam Generator. The leak causes alarms in the blowdown radiation monitor for the "A" Steam Generator and in the Condenser Air Ejector Discharge radiation monitor. A minor release path to the environment occurs through the Condenser Air Ejector. The release rate is above the allowable operating limits. The plant begins to shut down at about 0930.

During the plant shutdown, at 1007, a spurious Turbine Trip occurs, and the Steam Dump System (designed to relieve steam flow from the Steam Generators to the Condenser after the Turbine has tripped) fails to operate. All three Steam Generator Power Operator Relief Valves (PORVs) open to prevent overpressurization. When the plant stabilizes and the "B" and "C" PORVs reclose, the "A" Steam Generator PORV remains partially stuck open. The turbine trip also directly results in an automatic reactor trip. Two control rods fail to fully reinsert into the core in response to the reactor trip.

A Site Area Emergency should be declared around 1015 based upon a 70 gpm leak in the Reactor Coolant System and the partially stuck open PORV which provides a direct uncontrolled path to the atmosphere.

At 1116, a Loose Parts Monitoring System (LPMS) alarm occurs which indicates loose parts rattling in the Reactor Coolant System. This is followed by a drop of two previously stuck control rods into the core. The combination of the loose parts, along with the dropped rods, results in mechanical damage to a number of fuel assemblies in the core. Approximately 9% of the fission product activity normally trapped within a gap between the fuel pellets and the fuel pellet cladding is released into the reactor coolant. Reactor Coolant related radiation monitors alarm. Since the reactor coolant is leaking into the "A" Steam Generator, the high activity in the reactor coolant escapes into the atmosphere.

A General Emergency should be declared at around 1130 based upon the fuel damage in addition to the direct pathway via the Steam Generator leak and open PORV for releases into the environment.

From 1130 until approximately 1300, the release continues while the Control Room cools down and depressurizes the Reactor Coolant System to mitigate the release.

1991 RNPD Exercise Timeline

T0	0830	Initial conditions: Reactor is at 100% power steady state, RCS boron concentration is 103ppm, late in core life, normal RCS activity.
T+16"	0846	Fire alarm in CCW Heat Exchanger Room (one train), Fire Tech. will be dispatched to investigate.
T+18"	0848	Second train fire alarm actuated in CCW Heat Exchanger Room, Fire alarm will be sounded and fire brigade response will be required.
T+21"	0851	Approximate time for status report from CCW Heat Exchanger Room. Status will be room is full of heavy smoke and flames appear to be coming from the "A" CCW Pump fire.
T+23"	0853	DS Bus Undervoltage alarm is received on the DS/FP Annunciator panel A. "A" CCW Pump and "A" Charging Pump will be lost as a result of the loss of the DS bus. "D" Service Water Pump alternate power supply from the DS bus is lost also.
T+25"	0855	Sprinkler Activated alarm for the CCW Heat Exchanger Room is received. Approximate time for Fire Brigade at the scene.
T+30"	0900	Approximate time for declaring ALERT based on fire with potential to effect safety related equipment.
T+38"	0908	Approximate time fire is reported out. Actual time for "fire out" will be after 5 minutes of in room fire fighting.
T+45"	0915	Charging Pump High Speed alarm (APP-001-38) is received on the RTGB. Steam Generator Tube Rupture is beginning (70 gpm leak ramped in over 10 minutes) in "A" Steam Generator.
T+46"	0916	A second Charging Pump will be started and a leak rate determination (OST-051) may be started.
T+50"	0920	R-19A (Steam Generator Blowdown) monitor alarms.
T+52"	0922	R-15 (Condenser Air Ejector Discharge) monitor alarms.
T+59"	0929	Start shutdown of the Reactor at 2% a minute, RCS boration begins.
T+72"	0942	Approximate time to recover DS bus (actual time to be determined by player response), this will recover "A" Charging Pump.
T+75"	0945	Shutdown rate increased to 3% a minute.

1991 RNPD Exercise Timeline (Continued)

T+97"	1007	A spurious Turbine trip causes a Reactor trip, two control rods (E7 and E9) are stuck out.
T+98"	1008	Due to a failure of the Steam Dump System to operate all three Steam Generator PORVs lift to reduce pressure.
T+102"	1012	"A" S/G PORV noted to be open after temperature is returned to normal.
T+103"	1013	The Main Steam Isolation Valve for "A" S/G is shut.
T+107"	1017	Approximate time to declare SITE AREA EMERGENCY based on two (RCS and Containment) Fission Product Barriers breached.
T+110"	1020	An anticipated action is for Operations to attempt to use the MOV-350 valve to borate to cold shutdown. If this happens it will be noted to be inoperable. MOV-350 has been failed since the beginning of the drill.
T+152"	1102	"A" S/G PORV fails full open.
T+166"	1116	LPMS alarm (APP-036-3) is received in the Control Room.
T+167"	1117	Rods E7 and E9 drop into the core creating additional core damage.
T+168"	1118	R-9 (Letdown line) monitor alarms and continues to increase.
T+171"	1121	R-9 exceeds 5 Rem.
T+175"	1125	Approximate time for GENERAL EMERGENCY declaration.
T+176-END	1126	Cooldown and depressurization to stop release.
T+270"	1300	Approximate end of drill.