

U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No: 50-261
License No: DPR-23
Report No: 50-261/97-13
Licensee: Carolina Power and Light Company
Facility: H. B. Robinson Steam Electric Plant Unit No. 2
Location: 2112 Old Camden Rd.
Hartsville, SC 29550
Dates: November 17-21, 1997
Inspectors: W. Sartor, Exercise Team Leader
W. Rankin, Sr. Project Manager
J. Kreh, Radiation Specialist
B. Desai, Resident Inspector
Approved by: K. Barr, Chief, Plant Support Branch
Division of Reactor Safety

Enclosure

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EXECUTIVE SUMMARY

H. B. ROBINSON POWER PLANT UNIT 2 NRC Inspection Report No. 50-261/97-13

This routine, announced inspection involved the observation and evaluation of the biennial emergency preparedness exercise for the H. B. Robinson Steam Electric Plant Unit No. 2. This NRC/FEMA evaluated exercise was a plume and ingestion pathway exercise fully participated in by the State of South Carolina and Risk Counties. The plume exposure exercise was conducted on November 18, 1997 from 6:30 a.m. until 12:48 p.m. This report summarized the observations of the four-person NRC team that assessed the adequacy of the licensee's emergency preparedness program as the utility implemented its Emergency Plan and Procedures for the plume exposure exercise. The NRC evaluators observed licensee response from the Control Room Simulator (CRS), the Technical Support Center (TSC), the Operational Support Center, and the Emergency Operations Facility (EOF). Based on the performance observed, the evaluators concluded that the licensee successfully demonstrated its ability to implement the Robinson Emergency Plan and Procedures in response to the simulated accident.

Program Areas Evaluated and Results

- Scenario--The scenario developed for this exercise was effective for testing the integrated emergency response capability and exercise preparations were well organized (Section P4.1).
- Onsite Emergency Organization--Predesignated personnel with well defined responsibilities promptly staffed the Emergency Response Facilities (ERFs)(Section P4.2).
- Emergency Classification System--The licensee had a standard system for emergency classifications and used it to effectively classify the off-normal events. An Exercise Weakness was identified for failure to promptly declare a Notification of Unusual Event (Section P4.3)
- Notifications Methods and Procedures--The licensee demonstrated the ability to make timely and concise initial and follow-up notifications to the States and counties (Section P4.4).
- Emergency Communications--Provisions existed for the prompt communications among principal response organizations to emergency personnel, and they were effectively used during the exercise to provide timely information and coordinate emergency response (Section P4.5).
- Public Education and Information--The Joint Information Center and its staff were activated and functioned in a manner that provided for the dissemination of coordinated and accurate information to the public via the news media (Section P4.6).

- Emergency Facilities and Equipment--ERFs were organized, equipped, and maintained in a manner that provided for the emergency response (Section P4.7).
- Exercise Critique--The controller/evaluator organization conducted an excellent critique process (Section P4.8).

Report Details

Summary of Exercise Events

This biennial emergency preparedness exercise included full participation by the State of South Carolina and associated Risk Counties. The plume exposure exercise was evaluated by an NRC inspection team and was conducted from 6:30 a.m. to 12:48 p.m. on November 18, 1997. Player critiques were conducted by the licensee's emergency response participants in the Emergency Response Facilities (ERFs) following termination of the exercise. The NRC exit meeting was conducted on November 20, 1997, following the licensee's summary to management of exercise results.

Plant Support

P4. Staff Knowledge and Performance in Emergency Preparedness (EP)

P4.1 Exercise Scenario

a. Inspection Scope (82302)

The inspectors reviewed the exercise scenario to determine whether provisions had been made to test the integrated capability and a major portion of the basic elements of the licensee's plan.

b. Observations and Findings

The licensee submitted its scenario scope and objectives for the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2 Emergency Preparedness Exercise to the NRC with a letter dated September 3, 1997. The exercise scenario with controller information and simulation data was submitted with a letter dated October 2, 1997. A review of the package indicated that the scenario was adequate to exercise the onsite and offsite emergency organizations of the licensee and provided sufficient information to the State of South Carolina and local government agencies for their participation in the exercise.

c. Conclusion

The scenario developed for this exercise was effective for testing the integrated emergency response capability and exercise preparations were organized.

P4.2 Onsite Emergency Organization

a. Inspection Scope (82301)

The inspectors observed the functioning of the onsite emergency organization to determine whether the responsibilities for emergency response were defined and whether adequate staffing was available to respond to the simulated emergency.

b. Observations and Findings

The inspectors noted that the responsibilities for emergency response were clearly defined. The Superintendent for Shift Operations in the Control Room Simulator assumed the responsibilities as the Site Emergency Coordinator (SEC) and managed the designated responsibilities to include the call-out of personnel to staff the emergency response facilities (ERFs). The personnel responding constituted Team A of an emergency response organization (ERO) with four teams, each serving on a duty week rotational basis. Team A's response exemplified a well trained ERO by the performance observed during the exercise. Each of the four teams participated in three integrated drills during 1997 which included participation by different operating shifts in the Control Room Simulator. The predesignated personnel responded and staffed the ERFs.

c. Conclusion

Well trained personnel assigned ERO responsibilities per a duty roster responded promptly. All positions were filled with personnel aware of their predesignated responsibilities.

P4.3 Emergency Classification System

a. Inspection Scope (82301)

The inspectors observed selected emergency response personnel to determine whether a standard emergency classification and action level scheme was in use by the licensee.

b. Observation and Findings

The Emergency Procedure EPCLA-01, Emergency Control, provided consolidated guidance for classifying emergencies from the Control Room or Technical Support Center (TSC). The Emergency procedure EPCLA-02, Emergency Action Level User's Guide, provided guidance on the use of Emergency Action Levels (EALs) for classifying an emergency. A Notification of Unusual Event (NOUE) was declared at 8:10 a.m. due to a fire in the protected area lasting greater than 10 minutes. This was a correct classification according to the scenario, but it was not timely. Specifically, the Fire Alarm reset time was 7:25 a.m. with a visual confirmation of the fire at 7:38 a.m. Accordingly, the 10 minute fire parameter was met by 7:48 a.m., 22 minutes before the NOUE declaration was made and 32 minutes before the notification message was initiated. This delayed NOUE declaration was identified as an exercise weakness.-- Inspector Follow-up Item (IFI) 50-216/97-13-01. The NOUE declaration was not made timely when the EAL was exceeded. The licensee also identified this issue in their critique process and initiated corrective action during the week of the inspection. The remainder of the classifications which occurred at the more significant levels of emergency declarations

were all made correctly and timely. Specifically, the Alert declaration was also made from the CRS by the SEC at 8:59 a.m. based on the loss of one fission product barrier breached (fuel fission product barrier), with the other barriers intact. Both the Site Area Emergency (SAE) and General Emergency (GE) declarations were made by the SEC in the TSC. The SAE was declared at 10:02 a.m. based on two fission product barriers breached (fuel and reactor coolant system). The GE was declared at 10:47 a.m. based on three fission product barriers breached.

c. Conclusion

The licensee had a standard system for determining emergency classifications. The NOUE declaration was not timely and identified as an Exercise Weakness. The more significant emergency classifications were correct and timely.

P4.4 Notification Methods and Procedures

a. Inspection Scope (82301)

The inspectors observed the licensee's notification of State and local governmental organizations and emergency personnel to determine whether timely and substantive emergency information was provided in accordance with procedures.

b. Observations and Findings

The initial emergency notifications to the State of South Carolina and the county authorities were made within 15 minutes following the NOUE declaration. Responsibility for offsite notifications was assumed by the EOF when it activated. The notifications to the State and counties were made promptly from the EOF. The licensee used a Emergency Notification Form for State and local governments that was prepared via computer, providing improved legibility and expediting the transmission of information to those agencies. The licensee's use of this system was very effective in providing concise and informative event descriptions to the offsite authorities. The system was also effectively used for follow-up notifications.

c. Conclusion

The licensee was very effective in providing timely and concise information for the initial and follow-up notifications to the States and counties.

P4.5 Emergency Communications

a. Inspection Scope (82301)

The inspectors observed the flow of communications within the emergency response organization and from and between the ERFs to determine whether provisions existed for the prompt transmission of emergency information.

b. Observation and Findings

The inspectors observed that the communications between the utility and offsite agencies and amongst the ERFs were effective for the prompt transmission of emergency information. Responsible personnel were kept informed of ongoing events and communicated effectively in performing accident mitigation and initiating protective actions for both onsite and offsite personnel.

c. Conclusion

Provisions existed for the prompt communications among principal response organizations to emergency personnel, and they were effectively used during the exercise to provide timely information and coordinate emergency response.

P4.6 Public Education and Information

a. Inspection Scope (82301)

The inspectors observed how information concerning the simulated emergency was made available to the public.

b. Observations and Findings

Carolina Power & Light (CP&L) activated its Joint Information Center (JIC) at 9:50 a.m. at the CP&L Southern Region Complex, 1601 W. Lucas Street, Florence, South Carolina. The licensee provided a total of 8 news releases during the exercise. The news releases were timely and provided appropriate information regarding the emergency conditions.

c. Conclusions

The JIC and its staff were activated and functioned in a manner that provided for the dissemination of coordinated and accurate information to the public via the news media.

P4.7 Emergency Facilities and Equipment

a. Inspection Scope (82301)

The inspectors observed the activation, staffing, and operation of selected ERFs to determine whether adequate emergency facilities and equipment were available and maintained to support an emergency response.

b. Observations and Findings

Control Room Simulator - An inspector observed that the on-shift designated crew in the Simulator adequately responded to the off-normal events. The facility and equipment supported the crew as they entered the Emergency Plan and responded to the simulated emergency. .

Technical Support Center - The TSC was promptly staffed and activated after the Alert declaration. Personnel arrived within minutes of the Alert, and the TSC was fully activated within 44 minutes. Upon activation, the TSC Site Emergency Coordinator (SEC) assumed the responsibility to classify emergency events from the CRS. The SEC, in consultation with TSC staff, promptly and correctly classified the Site Area and General Emergencies.

The inspectors observed that the TSC staff worked well as a team to identify degrading plant conditions that would warrant upgrading the emergency classification. The coordination between the SEC and the SRO in the utilization of the emergency action level flowcharts for emergency classification purposes was effective overall.

The SEC was observed to exercise effective command and control and conducted briefings that were consistently clear, thorough, and sufficiently frequent. Each briefing was announced well in advance to allow TSC personnel an opportunity to prepare. All key functional managers in the TSC participated in the emergency briefings and assisted in revising TSC mission priorities as emergency conditions changed. TSC staff worked well together to determine effective mitigating actions with good technical analysis and conservative decision making.

Operational Support Center (OSC) - The OSC was activated in accordance with procedures and in a timely manner. The staffing was noted to be adequate and the activities initiated by the OSC were proactive. Periodic briefings were conducted and were found to be descriptive of the ongoing problems. The layout of the OSC provided for the dispatch of damage control teams in a timely manner. Habitability and contamination assessments were periodically conducted in the OSC.

Emergency Operations Facility - Staffing of the EOF began promptly after the declaration of the Alert classification. At 9:32 a.m., a detailed turnover briefing began with the Control Room, TSC, and EOF. At 9:43 a.m. (44 minutes after the Alert declaration), the EOF was declared activated by the Emergency Response Manager (ERM). The ERM provided concise and informative briefings to the staff on a periodic basis, and maintained excellent command and control of facility operations. Personnel staffing the EOF were knowledgeable concerning their emergency responsibilities. Key EOF positions were provided computer terminals with access to the Emergency Response Facility Information System (ERFIS), which allowed for the real-time display and trending of simulated plant data. In general, equipment and supplies available in support of the licensee's response to the simulated emergency were superior and represented the "state of the art" in emergency response technology. Noise levels in the EOF were moderate, and never impeded the function of the facility.

c. Conclusion

ERFs were organized, equipped in many cases with superior "state of the art" equipment, and maintained in a manner that provided for very effective emergency response.

P4.8 Exercise Critique

a. Inspection Scope (82301)

The inspectors observed the facility critiques immediately following the exercise and portions of the controller/evaluator organization critique process to determine whether weaknesses noted in the licensee's emergency response organization were formally presented to licensee management.

b. Observations and Findings

The licensee conducted adequate player critiques following exercise termination. The controller and evaluator staff also conducted a detailed review of observations made during the exercise. Each deficiency noted by the evaluator staff was well defined with proposed corrective action, an assigned responsibility and proposed due date. The licensee used a low threshold for identifying deficiencies in performance resulting in the issuance of nine Condition Reports.

c. Conclusion

The controller/evaluator organization conducted an excellent critique process, with a low threshold for identifying deficiencies.

V. Management Meetings

X1 Exit Meeting Summary

The Team Leader presented the inspection summary to members of licensee management following the licensee's critique on November 20, 1997. The summary indicated above average performance. The one negative observation concerned the NOUE declaration in paragraph with the exception of the exercise weakness identified in paragraph P4.3.

PARTIAL LIST OF PERSON CONTACTED

Licensee

J. Adams, Shift Technical Assistant
 C. Baker, Administrative Assistant to Vice President
 L. Baxley, Radiation Control Supervisor
 R. Barnett, Maintenance Superintendent
 D. Burriss, Senior Analyst
 A. Carly, Communications Manager
 S. Collins, Radiation Control Supervisor
 D. Edwards, Engineering Technician
 M. Gann, Project Analyst
 H. Goddard, Senior Support Analyst
 T. Hodges, Support Analyst
 R. Howell, Project Analyst
 G. Johnson, Supervisor, Emergency Preparedness
 E. Jones, Project Accountant
 A. Lucas, Emergency Preparedness Senior Analyst
 L. Lynch, Maintenance Supervisor
 J. Moyer, Plant General Manager
 T. Natale, Manager, Training
 P. Odom, Project Analyst
 R. Pierce, Project Analyst
 T. Pilo, Radiation Supervisor
 J. Rudick, Project Accountant
 B. Steele, Superintendent, Work Coordinator
 W. Stover, Relief Superintendent of Shift Operations
 R. Warden, Manager Nuclear Assessment Section
 T. Wilkerson, Manager, Regulatory Affairs

INSPECTION PROCEDURES USED

IP 82301: Evaluation of Exercises for Power Reactors
 IP 82302: Review of Exercise Objectives and Scenarios for Power Reactors

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-261/97-13-01 IFI Exercise Weakness - The NOUE declaration was not timely made when the EAL was exceeded (Section P4.3).

Attachment (15 pages):
 Scope and Objectives, Narrative
 Summary and Timeline

2.0 Scope

Mission and Purpose of Exercise

The purpose of this exercise is to demonstrate portions of Carolina Power and Light Company emergency response capabilities and other elements of H. B. Robinson Steam Electric Plant (HBRSEP) Unit No. 2 Radiological Emergency Plan and associated implementing procedures in accordance with Nuclear Regulatory Commission (NRC) Regulation 10CFR50.47(b). A simulated accident at the HBRSEP will involve planned response actions to include emergency classification; notification of offsite organizations; notification of plant personnel; augmentation of personnel (normal work day); activation of emergency response facilities including the Joint information Center (JIC); and the dispatching of plant Damage Control teams.

Exercise Schedule

- | | |
|-----------------------------|--|
| A. Participant Briefing | November 17, 1997 @ 10:00
HBRSEP Information Center |
| B. Final Controller Meeting | November 17, 1997 @ 14:00
EOF/TSC Room 412 |
| C. Exercise (Plume) | November 18, 1997 @ 06:30-13:00 |
| D. Facility Critique | At the conclusion of the exercise |
| E. Lead Evaluator Critique | November 19, 1997 @ 09:00
HBRSEP Administration Building Room 216 |
| F. CP&L Critique | November 20, 1997 @ 14:00
HBRSEP Information Center |
| G. NRC Exit | Date and time to be determined
HBRSEP Information Center |
| H. Participant Critique | November 20, 1997 @ 13:00
Darlington County Emergency Operation Center,
1625 Harry Byrd Highway
Darlington, S. C. 29532 |
| I. Public critique | November 20, 1997 @ 14:00
Darlington County Emergency Operation Center,
1625 Harry Byrd Highway
Darlington, S. C. 29532 |

Exercise Scope Participation

Participation by Organization												
Participants	Extent of participation							Notify			Activate	
	Not Involved	Limited	Full Participation	Controllers	Evaluators	Observers	Simulated	Actual	Simulated	Start/Finish	Actual	Pre-staged
H. B. Robinson Steam Electric Plant Unit No. 2			X	X	X	X		X			X	
CP&L Corporate Communications		X						X				
Darlington, Lee, and Chesterfield Counties			X					X				X
Florence County		X						X				X
State of South Carolina			X					X				X
NRC Resident			X								*	
NRC Operations Center			**					X				
NRC Region II Inspectors					X							
NRC Site Response Team	X											
FEMA					X							
Fire Department.	X											
Emergency Medical Services	X											
Hospital	X											
Agreement Physician	X											
Media							X***		X			

* Full activation of the site NRC resident will be determined by the resident.

** FTS-2000 will be used and the NRC will be given the opportunity to participate. If NRC is not participating, then CP&L will provide a simulated NRC contact.

*** An invitation will be extended to local area media to participate as mock media and/or to observe.

Participation by Facility								
Facilities	Staffing				Setup			
	Not Activated	Single Shift	Multiple Shift	Augmentation	Simulated	Actual	Pre-staged	Alternate
Simulated Control Room		X					X	
Operations Support Center		X				X		
Technical Support Center		X				X		
Emergency Operations Facility		X				X		
Joint Information Center		X					X	
CP&L Corporate Communications		X			X			
State Mobile Lab		X				X		
Hospital	X							
Forward Emergency Operations Center		X*				X*		
Darlington, Lee, and Chesterfield Counties		X				X		
Florence County		X				X		
State Emergency Operation Center		X				X		

* The FEOC will be used as a base of operations by the Department of Health and Environmental Control

Participation by Non-CP&L Organizations											
Activities	Extent of Participation				Frequency			Time		Source	
	Not Tested	Simulated	Partial	Full	One Time	Every Time	Specified Time	Real Time	Compressed	Participants	Scenario
Sheltering			X		X				X	X	
Evacuation			X		X				X	X	
Access Control			X		X				X	X	
Use of KI		X			X				X	X	
Fire Department	X										
Emergency Medical Services	X										
Ambulance Contamination Control	X										
Hospital Contamination Control	X										
Agreement Physician to Site	X										
News Release		X				X		X			X
Press Conference		X				X		X			X

The following is a definition of terms found in the tables in the preceding pages

1. Participation

A. Extent of Participation:

Not Involved - These groups will not participate. They may or may not be simulated by controllers as necessary.

Limited - Participation is limited to less than full participation. Evaluations by controllers will not penalize participants on items caused by the limited participation.

Full Participation - A full staff is expected to participate in the facilities involved.

Controllers - Will be used to simulate organizations not participating.

Evaluators - Will evaluate the exercise.

Observers - Outside organizations have requested to send observers to the areas checked.

Simulated - Where controllers are not used to simulate an organization that is not participating, the entire interface with the non-participating organization is simulated.

B. Notify:

Actual - Notification methods and procedures are used to notify the participating organization.

Simulated - The organization is not actually notified by procedure. The notification may be made to an artificial number with a controller staged to receive the information, or it may be simulated.

Start/Finish - Notifications will be at the start and finish of an exercise and not continual updates.

C. Activation:

Actual - Actual activation may involve notifying the emergency organization members at their work place and home, and set up of the facility is performed by the participants.

Pre-staged - The affected personnel may be in place or in a nearby place on standby when the initial notification to begin activation is received.

2. Facilities

A. Staffing:

Not Activated - No one reports to the facility.

Single Shift - Each position is expected to be staffed by a primary or alternate designee. No shift turnover is expected or required, but individual turnovers are acceptable if unavoidable schedule conflicts occur.

Multiple Shift - A shift turnover is required to meet exercise objectives.

Augmentation - An augmentation drill progressing from the on-shift complement to an activated emergency response organization is performed.

B. Setup:

Simulated - Setup of the facility is simulated.

Actual - Participants are expected to set up their facilities from everyday use to emergency use.

Pre-staged - Setup of the facility is already pre-staged in the emergency mode.

Alternate - Where available, an alternate facility will be used.

3. CP&L and Non-CP&L Activities

A. Extent:

Not Tested - This activity is not within the scope and objectives.

Simulated - This activity is not within the scope and objectives, but it must be simulated by the participants and/or controllers to assure a complete and logical exercise.

Partial - This activity is expected to be performed to the extent that plant completion can permit. Evaluators will not penalize participants for non-performance of activities where they must be simulated due to circumstances beyond their control; for example, lab analyses may involve participants in the lab using props instead of actual equipment.

Full - This activity is expected to be performed in full without simulation. For example, full use of SCBAs and protective clothing means donning the clothing and equipment and using the breathing air.

B. Frequency:

One Time - This activity can be demonstrated one time to the evaluators in order to fulfill exercise objectives.

Every Time - This activity must be performed every time as required by the conditions in response to the scenario. The evaluators, when available, will observe each time the activity is performed.

Specific Time - Where an activity is pre-staged or constrained by the scenario, such as for offsite fire participation, a specific time will be built into the scenario for the activity.

C. Time:

Real Time - The activity is performed by the participants in response to the scenario for as long as it takes.

Compressed Time - Some activities take so long, such as analysis of field collected samples in the mobile laboratory, that time must be compressed to complete that activity within the exercise schedule.

D. Source:

Participants - The driving force behind the activity will be participant response to the scenario. No messages will be handed out to participants to initiate the action.

Scenario - Driving force for initiating the activity will be a message handed to the participant from the controller.

Section 3.0 Objectives

Item #	Obj. #	Objectives for the 1997 Biennial Exercise
1	7	Demonstrate the ability to provide a representative to the State Emergency Operations Center/Forward Emergency Operations Center (SEOC/FEOC) (when activated) and County Emergency Operations Center (EOCs).
2	8	Demonstrate the ability to coordinate radiological monitoring and analysis.
3	9	Demonstrate the ability to identify and properly classify events using appropriate procedures, plant system parameter values, and the Emergency Action Levels (EALs).
4	10	Demonstrate the ability to alert, notify, and mobilize Emergency Response Organization (ERO) personnel.
5	11	Demonstrate the ability to make initial emergency notification to State and Chesterfield, Darlington, and Lee County Warning Points or EOCs within 15 minutes following declaration of each emergency classification.
6	12	Demonstrate the ability to make follow-up notifications to State and Chesterfield, Darlington, and Lee County Warning Points or EOCs within 60 minutes following initial and change of classification notifications.
7	13	Demonstrate the ability to formulate protective action recommendations and transmit to State and County personnel.
8	14	Demonstrate the ability to communicate with State and County personnel using primary and backup communication systems. *
9	16	Demonstrate the ability to communicate between the Control Room (CR), Technical Support Center (TSC), Emergency Operations Facility (EOF), Operational Support Center (OSC), Joint Information Center (JIC), and Environmental Monitoring teams.
10	17	Demonstrate the ability to communicate with the NRC within 60 minutes following each emergency classification declaration.
11	18	Demonstrate the ability to activate the JIC and interface with the news media.
12	19	Demonstrate the ability to provide a Corporate spokesperson and timely dissemination of information to the news media.
13	20	Demonstrate the ability to deal with rumors.
14	21	Demonstrate the ability to obtain data from meteorological, hydrologic, seismic, radiological monitors, and sampling devices.**
15	22	Demonstrate the ability to obtain samples and analyze data from the Post Accident Sampling System (PASS) and other post accident monitoring equipment.
16	23	Demonstrate the ability to determine the source term and magnitude of releases.
17	24	Demonstrate the ability to project dosage to the public, from the ingestion pathway, based on plant and field data.
18	29	Demonstrate the ability to provide ERO personnel protective clothing, respiratory protection, dosimetry, and radioprotective drugs. This also includes determination of doses received and maintenance of dose records 24 hours per day.
19	39	Perform a critique at the conclusion of an exercise to evaluate the ability of organizations to respond as required.

* Only primary communications will be used unless an actual failure occurs.

** No Hydrologic or seismic monitors will be used.

H.B. Robinson Steam Electric Plant Unit No. 2

Biennial Exercise

November 18, 1997

Narrative Summary and Timeline

Note

This exercise will include an Ingestion Pathway Zone (IPZ) demonstration, with full participation by the State and County agencies. The exercise will be conducted with the simulator in interactive mode. All times (except the start of the release) are for planning purposes and may vary due to the response of the operators.

The scenario begins at 0630 in the H. B. Robinson Steam Electric Plant (HBRSEP) Unit No. 2 Simulator with the unit at 100 percent power, middle of core life and in a 245 day continuous run. Charging Pump "A" is running initially, this unit will experience problems with the suction stabilizer relief later. "A" Emergency Diesel Generator is out of service for a six month mechanical inspection. Work is ongoing, but could be complete in two hours if a decision is made to restore the diesel generator.

At approximately 0645, the Simulator Control Room will receive a call from Murray and Trettel (Meteorological Company) informing them that a severe weather system is rapidly approaching. High winds, heavy rain, hail, and severe lightning may accompany this front. With the passing of the front, moderate winds and clear skies can be expected.

At 0700, this storm engulfs the plant site with severe lightning and heavy winds gusting to 30 miles per hour. A lightning strike in the switch yard occurs, and is noted by security personnel at approximately 0702. Subsequent investigations near the center (B phase) Main Transformer will reveal debris from the ground cable ceramic insulators and charring of the cable. This cable runs down a separate transmission tower just south of the transformer. These items confirm the lightning strike and provide the basis for future electrical problems.

At 0711, the fire alarm for the 4160 Room is received due to a small fire on the supply breaker (52/20) from the Auxiliary Transformer to 4KV Bus 4&5. The fire and damage is strictly limited to this supply breaker. Since this is a small fire, it is not anticipated that off site support will be requested, however, if so this will be simulated. The fire brigade will be dispatched to the scene, but thick smoke and heat from the breaker cubicle make further inspection difficult. After approximately 12 minutes, around 0730, the fire will go out and smoke will begin to clear. Also at 0730, "D" Instrument Air Compressor begins making a loud metallic noise which should trigger shutdown of the compressor.

An **UNUSUAL EVENT** should be declared at approximately 0730 due to the fire lasting greater than 10 minutes in the protected area. It is not anticipated that the Emergency Response Facilities will be activated, but discretionary activation is possible. Upon termination of the fire a team should be dispatched to trouble shoot and repair the cause of the fire. Damage assessment may begin after this time.

At 0735; a Loose Parts Monitoring System (LPMS) alarm will occur due to impacts in the upper region of the reactor vessel. Reactor Coolant System (RCS) activity begins to increase as fuel damage occurs. The letdown radiation monitor, R-9, begins to trend upward at 0745.

At 0800, an intercooler relief on the Primary Air Compressor begins to lift. This failure may be isolated and corrected by a repair team. Instrument Air Compressors "A" and "B" will remain available throughout the scenario, however, loss of "D" Instrument Air Compressor may increase the priority of this repair.

After approximately thirty minutes R-9 will have increased greater than 5000 mR. This exceeds the Emergency Action Level (EAL) for declaring the fuel fission product barrier breached. Conditions for an ALERT will be met, and at approximately 0830 an ALERT should be declared. The State and Counties will be notified, beepers will be initiated and all on site Emergency Response Facilities will be requested to activate at this time. During this same time, the Control Room will note the following indications for the Containment Vacuum Relief Valves:

Valve	Indication	Actual Position
V-12-12	Dual	Closed
V-12-13	Dual	Closed

A multi-discipline team, or mission if the OSC is activated, should be dispatched to determine if a release path to the environment exists. The outer relief valve will be found closed, thus no pathway is available. Indication problems are caused by faulty limit switches which will need to be replaced. Other indications of lightning strike damage will include "B" Circulating Water Pump trip and 4KV AC ground alarms on Bus 4 will flash in at various times.

At 0930, a 90 gallon per minute (gpm) primary to secondary RCS leak will be initiated in "B" Steam Generator (SG). This will breach the second fission product barrier. Loss of 2 fission product barriers meets the conditions required for a SITE AREA EMERGENCY. At approximately 0945, a SITE AREA EMERGENCY should be declared.

Shortly after declaration of the SITE AREA EMERGENCY, a loud, high pitched noise will begin as the "A" Charging Pump suction stabilizer relief begins to lift. This adds approximately 10 gpm to the leakage from the RCS (100 gpm total) and may be repaired, if attempted.

At 1015 the RCS leak will ramp to 250 gpm. Later, at 1045, a secondary Power Operated Relief Valve (PORV) on "B" Main Steam Line (monitored by radiation monitor R-31B) will open to start the OFF-SITE RELEASE. This is the failure of the final fission product barrier.

About 2 hours after turbine trip, at approximately 1100, the turbine zero speed alarm will be received in the Simulator Control Room. However, the turbine does not automatically go on the turning gear. This will be indicated by status lights on the turbine control panel and an alarm on the Control Room alarm panel.

A **GENERAL EMERGENCY** should be declared based on the loss of three fission product barriers at approximately 1100. Shortly before the PORV lifts the magnitude of the fuel failure will increase. The will further confirm the **GENERAL EMERGENCY** classification. From 1030 until 1215 all actions to repair the PORV will not succeed. The release will continue while the Control Room cools down and depressurizes the RCS to mitigate the release.

At approximately 1300, contingent on demonstration of off site objectives, the exercise will be terminated. After a short break a critique will be conducted in each CP&L facility.

T-Time	Clock	Simulator Instructions	Event Description	Emergency Plan Actions	Mission Dispatched
T=0	0630	IC-13	Reactor Power 100% Time in Core Life MOL Turbine Load 740 Mwe Rod Height CB-D 218 Steps Tave 575 degrees F. RCS Pressure 2236 psig Xenon : Equilibrium Boron Concentration 630 ppm Days on line 245 "A" EDG OOS for 6 month inspection "A" Charging Pump operating		
T=15	0645		The Simulator Operations Crew assumes the watch Call from Murray & Trettel (Meteorologists) about weather conditions.		
T=32	0702		- Lightning strike reported to the Control Room. - "D" Instrument Air (IA) Compressor making loud noise.		Dispatch AO to investigate noise. Possible Mechanical Team dispatch to investigate.
T=41	0711	IRF FPS125 (None 0) Actuate	Fire alarm, Zone 29, due to fire on 4kv bus 4&5 breaker 52/20	Review EALs.	
T=48	0718		Approximate time for Fire Tech. or Team Leader at scene.		Fire Brigade Response
T=58	0728		Approximate time for the UNUSUAL EVENT to be declared due to fire lasting more than 10 minutes in the Protected Area		

T-Time	Clock	Simulator Instructions	Event Description	Emergency Plan Actions	Mission Dispatched
T=60	0730	From panel mimics APP-009 C-4, 4KV SWITCHGEAR GROUND ORP XNO9C04 (None 00) Alarm_On	4KV Bus 4 Ground , approximate time fire out		
T=65	0735	RCT02 @.001 ramp in 1000 sec From panel mimics APP-036 I-4, ORP XN36I04 (None 00) Alarm_On	LPMS alarm on the upper core.		Possible PASS mission and increase in Radiological monitoring of the Aux building AO/STA/System Engineer mission to LPMS
T=75	0745	RCT02@.003 ramp in 1000 sec	- Increase in RCS activity due to Failed Fuel - R-9 begins to trend upward		
T=90	0800		Primary Air Compressor relief begins to lift.		Dispatch AO, Possible Mechanical Team
T=95	0805	RCT02 @.005 ramp in 1000 sec	Increase in RCS activity due to Failed Fuel		Possible PASS mission
T=120	0830	From panel mimics APP-009 C-4, 4KV SWITCHGEAR GROUND ORP XNO9C04 (None 00) Alarm_On	- Approximate time for ALERT to be declared. - 4KV Bus 4 Ground.	Activate on site facilities.	
T=125	0835	From panel mimics ORP XDDO088B (None 00) On ORP XDDO088D (None 00) On IMF CWS01B (None 00) Ok	Vacuum relief valve (V-12-12 & V-12-13) dual indication given. Circulating Water Pump "B" trip.		Damage Control Mission to inspect Vacuum Relief Valves (V-12-12 and V12-13)
T=180	0930	IMF SGN02E (None 00) 75	Primary to secondary leakage of 75 gpm in "B" SG.	Review EALs	
T=195	0945		SITE AREA EMERGENCY to be declared due to the loss of two fission Product Barriers	Activate Joint Information Center, Simulate Site Evacuation	

T-Time	Clock	Simulator Instructions	Event Description	Emergency Plan Actions	Mission Dispatched
T=210	1000	MMF SGN02E (None 00) 85	"A" Charging Pump Suction Stabilizer Relief lifts, adds 10 gpm to RCS leak rate.		Possible AO sent to investigate loud squeal coming from Charging Pump Room. Possible Mechanical Mission.
T=225	1015	IMF SGN02E (None 00) 250	Primary to secondary leakage to increase to 250 gpm in "B" SG		
T=240	1030	IMF TUR13 (None 00) Ok	Turbine at zero speed, turbine does not go on turning gear.		Possible Mechanical Mission
T=255	1045	IMF MSS04B (None 00) 100	"B" Main Steam Line PORV opens, <u>OFF SITE RELEASE</u> to begins, <u>PORV to remain open for at least 1 hour.</u>	Review EALs.	Damage Control Mission to repair PORV
T=270	1100		GENERAL EMERGENCY Declared due to the loss of three Fission Product Barriers		
T=390	1300		Terminate the exercise		Inform Control Room to make announcement
T=405	1315		Critique in each facility.		