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

DEC 22 1992

Report No.: 50-261/92-30

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

Docket No.: 50-261 License No.: DPR-23

Facility Name: H. B. Robinson

Inspection Conducted: November 16-20, 1992

Inspector: W. M. Sartor, Jr. 12/23/92
Date Signed

Team Members: B. Haagensen (Sonalysts, Inc.)
L. Keller
C. Ogle

Approved by: K. Barr, Chief 12/23/92
Date Signed
Emergency Preparedness Section
Radiological Protection and Emergency
Preparedness Branch
Division of Radiation Safety and Safeguards

SUMMARY

Scope:

This routine, announced inspection involved the observation and evaluation of the annual emergency preparedness exercise. Emergency organization activation and response were selectively observed in the Simulator Control Room (SCR), Technical Support Center (TSC), Operational Support Center (OSC), and Emergency Operations Facility (EOF). The inspection also included a review of the exercise scenario and observation of the licensee's post-exercise critique.

Results:

In the areas inspected, violations or deviations were not identified. The licensee's emergency response organization demonstrated the ability to implement the Emergency Plan and Implementing Procedures in a manner which provided adequate protection for the health and safety of the public. Exercise strengths included the dose assessment teams in the TSC and EOF; the

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prompt formulation and transmittal of protective action recommendations to the State and local authorities; and the formation and dispatch of damage control teams. The inspector also noted that the licensee's first use of the simulator during a graded exercise was well coordinated and the associated real-time plant parameter displays in the Emergency Response Facilities (ERFs) contributed significantly to the demonstration of exercise objectives. Negative observations included the delayed Site Area Emergency classification, the delayed activation of the beeper system for the Emergency Response Organization (ERO) staffing, and some inaccuracies in the notification messages to the State and local authorities.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*R. Barnett, Manager, Outages and Modifications
*C. Baucom, Project Specialist, Regulatory Compliance
*S. Billings, Technical Aide, Regulatory Compliance
*G. Bowen, Senior Specialist, Training
*M. Burch, Program Director, Plant Support
*B. Clark, Manager, Maintenance
*J. Clery, Manager, Technical Support
*R. Crook, Senior Specialist, Regulatory Compliance
*J. Eaddy, Manager, Environmental and Radiological Control Support
*M. Gann, Specialist, Emergency Preparedness
*A. Garrou, Project Specialist, Emergency Preparedness
*E. Gardner, Radiation Control Supervisor
*W. Gainey, Manager, Plant Support
*J. Harrison, Manager, Regulatory Compliance
*J. Huntley, Supervisor, Maintenance Planning
*R. Indelicato, Manager, Corporate Emergency Preparedness
*P. Jenny, Manager, Emergency Preparedness
*A. Lucas, Specialist, Emergency Preparedness
*P. Odom, Program Director, Plant Support
*F. Pearce, Senior Specialist, Maintenance Support
*E. Shoemaker, Manager, Mechanical Systems
*B. Slone, Supervisor, Records Management
*W. Stover, Shift Supervisor, Operations
*L. Williams, Manager, Security

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

NRC Resident Inspectors

*L. Garner, Senior Resident Inspector

*Attended exit interview

2. Exercise Scenario (82302)

The scenario for the emergency exercise was reviewed to determine whether provisions had been made to test the integrated emergency response capability and a major portion of the basic elements within the licensee's Emergency Plan, as required by 10 CFR 50.47 (b)(14) and Section IV.F of Appendix E to 10 CFR Part 50.

The scenario for this partial participation exercise (State and local governments participating for notifications and communications only) was reviewed in advance of the scheduled exercise date and discussed with

licensee representatives prior to the exercise. The exercise scenario was well organized and of sufficient detail for the licensee's emergency response organization to demonstrate the exercise objectives. The scenario sequence of events was relatively straight forward with all levels of emergency classifications being made and separated by approximately an hour or more. This sequence permitted the activation of the emergency response facilities during this daytime exercise to progress in an orderly response and not unduly challenge the response. The scenario added impetus to a needed change to the licensee's Emergency Action Level flowchart on determining the status of the containment fission product barrier (FPD). Specifically, a radioactive release was occurring and the Site Emergency Coordinator adhered to a close interpretation of his flowchart and waited for confirmation of which containment penetration was unisolable prior to declaring the containment FPB breached. Compared to the exercise scenario timeline, this resulted in a Site Area Emergency classification approximately 30 minutes late. Since the emergency declaration made during this exercise was within the technical interpretation of the flowchart as currently approved, this issue was not considered a finding. The licensee is currently processing an EAL flowchart revision which should correct such a delay and improve the flowchart.

No violations or deviations were identified.

3. Onsite Emergency Organization (82301)

The licensee's organization was observed during the exercise to determine whether the requirements of Paragraph IV.A of Appendix E to 10 CFR Part 50 (as addressed in the Emergency Plan) were implemented with respect to descriptions, responsibilities, and assignments of the onsite emergency response organization.

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 was available to fill key functional positions within the initial onsite emergency organization. Following the decision to activate the Technical Support Center (TSC) and Operations Support Center (OSC), designated individuals were notified and responded to their respective onsite emergency facility to assume the duties of assigned emergency positions. Likewise, following the Site Emergency Coordinator's (SEC) decision to activate the Emergency Operations Facility (EOF), designated personnel responded and staffed the EOF in accordance with their preassigned responsibilities.

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, whether

arrangements to accommodate State and local personnel at the EOF were adequate, 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 guidance promulgated in Section II.C of NUREG-0654 (Revision 1). An inspector noted that the licensee's Emergency Plan and procedures identified other organizations capable of augmenting the planned response. The limited participation of this exercise did not include these organizations; however, arrangements for requested offsite assistance resources were in place.

No violations or deviations were identified.

5. Emergency Classification System (82301)

This area was observed to verify that a standard emergency classification and action level scheme was in use by the licensee as required by 10 CFR 50.47(b)(4) and Paragraph IV.C of Appendix E to 10 CFR Part 50, and to determine whether that scheme was adequately implemented.

The licensee's EAL-1 flowchart was used to identify and classify each emergency condition and to escalate to more severe classifications as the simulated accident progressed. The licensee's classifications and emergency declarations were appropriate throughout the exercise with the exception of the delayed SAE classification previously discussed in Paragraph 2. The Notification of Unusual Event was declared by the Shift Foreman at 0750 based on a confirmed earthquake. The Alert was declared at 0850 on the basis of R-9 exceeding a 5R/hr rise in 30 minutes. The Site Area Emergency was declared at 1121 by the Emergency Response Manager (ERM) in the EOF on the basis of 2 fission product barriers breached. At 1235 the ERM upgraded the emergency classification to a General Emergency based on 3 fission product barriers breached.

No violations or deviations were identified.

6. Notification 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 implementing procedures for notifications had been established and were adequate to provide guidance to personnel responsible for initial notification to the State and local authorities.

The initial notifications were timely for the emergency declarations, but some inaccuracies were noted as follows:

- o Follow-up notification message #3, approved at 1000, did not report that a leak in the RCS was causing a build-up of radioactive source term inside containment. This leak had commenced at 0830 and was positively diagnosed at 0849 in the control room. The existence of this condition was not reported to the State and local authorities until the next sequential follow-up message at 1105. This should have been reported immediately as a significant change in the condition of the plant.

- o Follow-up notification message #5 understated the dose projections and source term estimates. The message was approved for transmission at 1131 and the release magnitude was incorrectly reported to be 3.6 curies noble gas, and 0.54 curies Iodine. These values were based on an out-dated dose projection that had been completed at 1043. More recent dose projection results at 1108 and 1122 showed a substantially higher source term. The best estimate for the magnitude of the source term had been completed at 1122 and had indicated 111.6 curies (noble gas) and 16.5 curies iodine.

- o Follow-up notification message #7 understated the dose projections and source term estimates. This message was approved for transmission at 1247 and the release magnitude was incorrectly reported to be 72.0 curies noble gas and 10.8 curies Iodine. These values were based on an out-dated dose projection that had been completed at 1212. The best estimate for the magnitude of the release had been completed at 1220 and had indicated 122.4 curies of noble gas and 18 curies Iodine.

The above inaccuracies were discussed with the licensee at the exit interview. The licensee stated the decision to limit changes to the message preparation had resulted in earlier cut off times for the source term data. The inspector emphasized the need for the latest data available to be transmitted but did not make the issue a finding since the protective action recommendations remained correct. Notifications observed were a significant improvement over the previous year's exercise notifications. Exercise Weakness 50-261/91-26-03 remains open to follow corrective action on this issue.

An inspector also noted that the NRC Notification Worksheet, NRC Form 361, had been transcribed by the licensee into a local form. This local form listed the "Notification of Unusual Event" as an "Unusual Emergency". The Control Room Communicator reported the "Notification of Unusual Event" to the (simulated) NRC Operations Officer as an "Unusual Emergency" which had the potential to cause confusion. The licensee also identified this issue in their critique and indicated the corrective action was being taken.

In accordance with the exercise scenario, the Alert Notification System (ANS) for alerting the public within the plume exposure pathway emergency planning zone (EPZ) was not actuated during the exercise.

No violations or deviations were identified.

7. Emergency Communications (82301)

This area was observed to verify that provisions existed for prompt communications among principal response organizations and emergency personnel as required by 10 CFR 50.47(b)(6), 10 CFR 50, Appendix E, Paragraph IV.E, and 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 organizations and offsite authorities. The inspector did not note any significant problems with the communications equipment utilized during the exercise; however, the licensee indicated the delayed beeper call out for the activation of the ERFs was partially due to the limited number of phone lines available from the simulator.

No violations or deviations were identified.

8. Public Education and Information

Information was provided to the media and the public with press releases issued during the exercise from the Joint Information Center (JIC) located in the Florence District Office. These activities were not observed by the NRC during this exercise.

No violations or deviations were identified.

9. Emergency Facilities and Equipment (82301)

This area was observed to determine whether adequate emergency facilities and equipment to support an emergency response were 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 to include the Simulator Control Room (SCR), TSC, OSC, and the EOF. In all cases, the facility and its dedicated equipment facilitated the emergency response. Of particular note was the remodeling of the TSC and EOF. In both instances, the improvements to the layout and equipment significantly contributed to improved emergency response for licensee personnel.

No violations or deviations were identified.

10. 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. The dose assessment teams in the EOF and TSC were coordinated and were able to provide accurate and rapid dose projections and source term estimates for the accident sequence.

No violations or deviations were identified.

11. Protective Responses (82301)

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

The inspector verified that the licensee had emergency procedures for formulating protective action recommendations (PARs) for the offsite populace within the 10-mile EPZ. Protective actions were quickly formulated in accordance with PEP-105 and transmitted to the State and local authorities within 15 minutes of the declaration of the General Emergency.

No violations or deviations were identified.

12. 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, and specific criteria in NUREG-0654, Section II.N.

The licensee conducted player critiques in the facility immediately following the exercise. On November 19, 1992, the licensee also conducted evaluator/controller critiques prior to the formal presentation to facility management on the following day. The licensee's critique to their management on November 20 was comprehensive and addressed items needing improvement.

No violations or deviation were identified.

13. Action on Previous Inspection Findings (92701)

a. (Open) Exercise Weakness (EW) 50-261/91-26-03: Failure to provide complete information regarding the simulated casualty to State and local governments. Although licensee performance in this area was vastly improved over the previous year, the inaccuracies previously described in Paragraph 6 result in this issue remaining open.

b. (Closed) EW 50-261/91-26-04: Failure to conduct damage control activities in a timely manner. This issue was closed based on observations during this exercise which included: damage control activities were rapidly formulated, directed, dispatched and controlled from the OSC. The teams were correctly prioritized in the TSC and damage control efforts were rapidly focused on stopping the breach in containment.

c. (Closed) EW 50-261/91-26/06: Failure to demonstrate adequate assessment of the radiological consequence of the accident (dose assessment). This issue was closed because of the successful dose assessment team activities described in Paragraph 10.

d. (Closed) EW 50-261/91-26-07: Failure to demonstrate the formulation of protective action recommendations. This issue was closed based on the timely protective action recommendations provided to the State and local authorities during this exercise.

14. Exit Interview

The inspection scope and results were summarized on November 20, 1992, with those persons indicated in Paragraph 1. The exercise Team Leader described the areas inspected and discussed in detail the inspection observations. No proprietary information is contained in this report. Dissenting comments were not received from the licensee.

Attachments
Drill and Exercise Objectives,
Narrative Summary

ROBINSON NUCLEAR PROJECT

DRILL & EXERCISE OBJECTIVES
1992

No.	Objectives
1.	Demonstrate the ability of the Control Room to detect accident conditions and formulate near term mitigating actions.
2.	Demonstrate the adequacy of the Technical Support Center in providing accident assessment and mitigation, dose assessment, and other activities.
3.	Demonstrate the ability to identify and properly classify the emergency in accordance with the Emergency Plan and Implementing Procedures.
4.	Demonstrate the adequacy of procedures for alerting, notifying, and mobilizing Emergency Response Organization Personnel.
5.	Demonstrate the timeliness of initial and follow-up notifications to responsible state and local government agencies.
6.	Demonstrate the adequacy of the information provided to responsible state and local government agencies in the initial and follow-up notifications.
7.	Demonstrate the capability to make timely and accurate notifications to the Nuclear Regulatory Commission. (Actual participation of the NRC Operations Center may be simulated.)
8.	Demonstrate the ability to effectively communicate with plant emergency teams and company environmental monitoring teams.
9.	Demonstrate the ability to communicate between Emergency Response Facilities.
10.	Demonstrate the ability to support the radiological assessment process while maintaining personnel radiation exposure as low as reasonably achievable (ALARA).
11.	Demonstrate the capability to perform radiological monitoring activities and assessment.
12.	Demonstrate the ability to provide adequate radiation protection services such as dosimetry and personnel monitoring.

DRILL & EXERCISE OBJECTIVES
1992

No.	Objectives
13.	Demonstrate the ability to adequately control the spread of contamination and the radiological exposure of on-site and off-site emergency workers.
14.	Demonstrate the ability to formulate appropriate protective action recommendations to off-site government authorities.
15.	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).
16.	Demonstrate that the Technical Support Center, Operational Support Center, and Emergency Operations Facility can be activated in accordance with the Emergency Plan and its implementing procedures.

Demonstrate corrective action for the following 1991 exercise weaknesses:

17.	Failure to provide complete information regarding the simulated emergency to state and local governments, as required.
18.	Failure to demonstrate the ability to conduct damage control activities in a timely manner.
19.	Failure to demonstrate adequate assessment of the radiological consequences of the simulated accident/dose assessment.
20.	Failure to fully demonstrate the formulation of Protective Action Recommendations.

1992 ANNUAL EXERCISE
NARRATIVE SUMMARY

The scenario begins at 07:30 with Reactor Coolant System (RCS) activity higher than normal due to "leakers" in the fuel. Tube plugging is in progress on HVH-2 (Containment Fan Cooler). A resin transfer is also scheduled to occur today in the Radwaste Building. At 0748 a seismic event occurs which is followed by a call from the load dispatcher confirming seismic activity in northeastern South Carolina. Operations will consult the seismic activity abnormal operating procedure and begin to perform plant walkdowns and prescribed Operational Surveillance Tests (OSTs). An **Unusual Event** should be declared based on confirmed seismic activity around 08:00.

At 08:18 the results of the seismic instrumentation should be available and will indicate that the earthquake was below the threshold for declaring an Alert. At 08:30 RCS activity begins to increase on R-9 (letdown) and R-4 (charging pump room) area monitors. The R-9 reading will increase to the alarm setpoint and the R-4 reading is elevated. Based on the continued increase of R-9 the fuel fission product barrier will be considered breached and at approximately 09:00 an **Alert** should be declared.

A small RCS leak (~2 gpm) will then occur at about 09:10. This will result in increasing readings for the containment gas and particulate monitors (R-11 and R-12) to the alarm setpoint. The operations crew will be alerted to the fact that there is a leak in the RCS inside containment. The leak rate is well below the threshold for considering the RCS fission product barrier breached and no upgrade of the emergency classification is expected. A condenser vacuum leak will occur at about 09:20. This malfunction will prompt the decision to shut down the reactor if the decision has not already been made by this time. During the shutdown, control rod H-8 will be noted as stuck in position.

At 10:30 an after-shock will occur causing the failure of the service water piping for HVH-2 in the charging pump room. This provides a direct pathway from containment through the open service water piping in containment to the pipe break in the charging pump room to the Auxiliary Building Ventilation System. The leak of the Containment Vessel atmosphere into the charging pump room through the failed service water piping will cause a single train of fire alarm to be received in the Control Room. A small release will be detected through the plant vent stack by the stack monitor (R-14). The containment fission product barrier should then be evaluated as breached. At 11:00 a **Site Area Emergency** should be declared based on the loss of two fission product barriers (fuel and containment).

The second seismic alarm will also cause additional fuel failure which will be

reflected in rising R-4 readings. The small release with increasing fuel failure and a direct pathway to the environment may result in a conservative early General Emergency to be declared, even though the RCS fission product barrier leakage is well below the threshold for breach of that barrier.

At 12:30 the leak from the RCS increases substantially to 400 gpm, well above the leakage required to consider the RCS breached (50 gpm). The loss of the third fission product barrier (RCS) should result in a **General Emergency** to be declared at about 12:45.

The Protective Action Recommendation chosen should be either to evacuate the five mile radius and ten miles downwind (shelter all other sectors) or to shelter the five mile radius and evacuate 5-10 miles downwind. These recommendation choices should be made based upon the breach of three fission product barriers (release in progress). The decision between the two choices will be made based upon the judgement of the Site Emergency Coordinator whether or not an estimate of the duration of the release is known and that estimate is less than the evacuation time.

At approximately time 14:30 the exercise will be terminated.

T-Time	Clock	Simulator Instruction	Event Description	Emergency Plan Actions	Missions Dispatched
0000 MSGs 1A 1B 1C	0700 to 0730	Set IC=20 Set Met Data Flag = False Boron = 507 ppm, fuel @ MOL. Update Rods LOA EPS 125 Override HVA: D, F, H (HVH 2 O.O.S. per OWP-009) Drain SI Accum. to low end Lower Lake temp to 67 deg Lower Outside temp to 50 deg Xmitter Override: R-2: 12 mR/hr R-4: 5 mR/hr R-7: 9 mR/hr R-9: 95 mR/hr R-11: 20,000 CPM R-12: 1,200 CPM R-14A: 20,000 CPM R-14B: 1,200 CPM R-14C: 400 CPM R-19A&B: 1000 CPM R-19C: 500 CPM R-14B Setpoint = 1.4E6 CPM	Shift Turnover Briefing for Control Room, Maintenance & E&RC: - Reactor Coolant Activity is higher than normal due to a leaker fuel element. - Tube plugging is in progress on the service water cooler of HVH 2. - Resin shipment loading is in progress.	Control Room turnover briefing.	- No one is in containment. - Turnover of the HVH 2 work team is in progress. - 2 Mechanics and 1 HP to be sent into Containment to resume work on HVH 2. MISSION #1
0015 MSG 2	0745		Upon attempting to open the CV airlock, hand wheel will not turn.		- Dispatch a maintenance team to fix the CV air lock MISSION #9
0018 MSG 3(P) MSG 4	0748	Override MSC: Seismic Alarm	- A seismic event occurs and the seismic monitoring system alarms. - The crane used to move resin becomes inoperable with a resin drum in mid-air suspended by a sling.		- I&C is dispatched to read the seismic monitors per MST-904. - Dispatch a maintenance team to fix the crane. MISSIONS #2 & 3A
0020 MSG 5	0750	Load dispatcher calls into Control Room: "An earthquake occurred in northeastern South Carolina. The possibility of aftershocks exist."	The load dispatcher calls to confirm seismic activity.	Approximate time that Emergency Action Levels will be reviewed.	

T-Time	Clock	Simulator Instruction	Event Description	Emergency Plan Actions	Missions Dispatched
0110 → 0148 MSG 12(P)	0920 → 0958	Inhibit Alarm: Turbine at Zero Speed. MAL CRF-4	During shutdown of the unit, the individual rod position indicator for H-8 indicates that the rod has not moved.		OSC requested to dispatch an I&C team to investigate H-8 MISSION #6
0135 MSG 13	0945			Darlington County decides to close all schools. Darlington Co. also reports earthquake damage.	
0150	1000			Approximate time that TSC and OSC should be activated.	
0180 MSG 14(P)	1030	Override MSC: Seismic Alarm Xmitter Override: R-2: 15 mR/hr in 6300 sec. R-4: 5000 mR/hr in 120 sec. R-7: 13 mR/hr in 6300 sec. R-9: 1.0E+5mR/hr in 240 sec. R-12: 2.1E+5CPM in 6300 sec. R-14A: 1.0E+6CPM in 900 sec. R-14B: 1.0E+6CPM in 900 sec. R-14C: 3655 CPM in 900 sec.	Aftershock occurs. The seismic monitoring system in the control room alarms. - The charging pump area radiation monitor (R-4) begins to rise again. - The service water pipe in the charging pump room is ruptured. - Small release begins. The stack airborne monitor (R-14) increases but does not alarm.		OSC Requested to send teams to check seismic recorders per MST-0904. MISSIONS #3B & #7
0182	1032	- Waste Disposal Boron Recycle Alarm - Fire alarm (one train only) in Zone 4	- A waste disposal boron recycle alarm is received in the control room. The source of the alarm is the charging pump seal leakoff tank level. - A fire alarm is received in Zone 4.		Operator sent to investigate.
0185 MSG 17	1035	Load dispatcher calls into Control Room: "A second earthquake occurred near the first one in northeastern South Carolina. The possibility of more aftershocks exist."	- The load dispatcher calls to confirm a second seismic event in the region. - HVE 5B started.	- Alarm and PA announcement for local evacuation of Charging pump room. - A dose projection based on the current R-14 readings may be made.	- AOs dispatched for AOP-021 walkdown of the plant. - OSC Team will be requested to dispatch a team to the charging pump room to repair service water pipe. MISSION #8B

T-Time	Clock	Simulator Instruction	Event Description	Emergency Plan Actions	Missions Dispatched
0195	1045	Xmitter Override: R-14C: 16,725 CPM in 5400 sec.		EALs should be consulted.	During the post seismic walkdown, a service water pipe in the charging pump room for HVH-2 is discovered failed. This creates a direct path from containment air to the charging pump room via the open HVH unit in containment.
0210 MSG D	1100	Clear Override MSC 14 when notified by seismic controller	Approximate time that the results of the seismic monitoring system alarm is interpreted. The results are .09G horizontal acceleration and .06G vertical acceleration.	Approximate time that a Site Area Emergency is declared based upon failure of two fission product barriers (fuel breach based upon R-9 monitor and containment breach based on pathway for fission products to escape to the environment).	I&C reports back to the Control Room with the results of the seismic monitors.
0215 MSG 18	1105			Approximate time that Site Evacuation Alarm and PA announcement is made of Site Area Emergency.	
0225 MSG 19(P)	1115	Xmitter Override: R-33: 0.8 mR/hr in 4500 sec. **CONTINGENCY BASED ON ISOLATION OF LETDOWN:** R-4: 3,621 mR/hr in 3600 sec. R-9: 21,000 mR/hr in 10800 sec.	Approximate time that unit is off line.	Approximate time that States and Counties will be notified of the Site Area Emergency.	Damage Control Team to discover ruptured pipe.
0250 MSG 20	1140			Time that public warning system sirens and EBS will be sounded (controller injected message).	
0270	1200			Approximate time for EOF activation if not done at an Alert.	

T-Time	Clock	Simulator Instruction	Event Description	Emergency Plan Actions	Missions Dispatched
0300 MSG 21(P)	1230	Malfunction RCS 9A 400/10 Xmitter Override: R-2: 1.0E+4mR/hr in 1200 sec. R-4: 1.0E+4mR/hr in 300 sec. R-7: 1.0E+4mR/hr in 1200 sec. R-12: 4.5E+6CPM in 300 sec. R-14C: 5.0E+4CPM in 300 sec. R-32A: 140 R/hr in 6300 sec. R-32B: 140 R/hr in 6300 sec. R-33: 78 mR/hr in 6300 sec.	A large break Loss of Coolant Accident (400 gpm) occurs inside containment. This corresponds to loss of the third fission product barrier. Activity in the charging pump room increases dramatically due to the service water pipe break and R-4 rises to high levels.	The EALs will be consulted.	
0305 MSG 22(P) MSG 23(P)	1235	Xmitter Override: R-12: 1.0E+7CPM in 1200 sec. R-14C: 1.0E+6CPM in 1200 sec.	The stack monitor (R-14) alarms. A significant radiological release begins.	A dose projection based upon the R-14 monitor reading will be made. Environmental Monitoring Teams close in may begin to see increases in monitor readings.	
0315 MSG E	1245	Xmitter Override: R-14D: 296 CPM in 900 sec. R-14E: 15 CPM in 10 sec.		Approximate time that a General Emergency is declared.	Approximate time that first PASS results will be available to the TSC.
0330 MSG 24	1300	MAL TUR 13 Turbine Turning Gear motor trip. Xmitter Override: R-14D: 725 CPM in 5400 sec.	Turning Gear fails to engage.	Approximate time that the state and counties are notified of the General Emergency. A protective action recommendation will be made.	MISSION #10
0345 MSG 25	1315			Approximate time that State decides on what public protective action will be made. State will order an evacuation of the ten mile EPZ (Controller message).	
0360 MSG 26	1330			Approximate time that sirens and EBS will be sounded (Controller message).	

T-Time	Clock	Simulator Instruction	Event Description	Emergency Plan Actions	Missions Dispatched
0420 MSG 27	1400		Terminate Exercise.	Notify all affected parties.	

R-6 Simulator Instructions:

Set R-6 to Value Shown at times indicated. Return R-6 to 2x original value when sample complete.
All ramp times are 30 seconds.

T-Time	Clock	(Normal RCS Sample) mR/hr	(PASS Sample) mR/hr
0075-0135	0845-0945	900	100
0135-0195	0945-1045	1800	200
0195-0255	1045-1145	15000	5000
0255-0315	1145-1245	14500	1000
0315-0375	1245-1345	11000	600
0375-0435	1345-1415	9000	500
0435-	1415-	5000	250

			07:30	07:45	08:00	08:15	08:30	08:45	09:00	09:15	09:30	09:45	10:00	10:15	10:30	10:45
RADIATION MONITORS																
R2	CV LOW RANGE	mR/hr	12	12	12	12	12	12	12	12	12	12	12	12	12	12
R4	CHARGING PUMP AREA	mR/hr	5	5	5	5	5	262	359	558	543	532	524	515	5000	5000
R7	SEAL TABLE	mR/hr	8.0	9	9	9	9	9	9	9	9	9	9	9	9	9
R9	LETDOWN LINE AREA	mR/hr	99	99	99	99	99	5248	7185	11167	10860	10646	10489	10306	100000	100000
R11	CV PURGE PARTICULATE	CPM	20000	20000	20000	20000	20000	20000	20000	229580	433287	632872	829400	1000000	1000000	1000000
R12	CV PURGE GAS	CPM	1200	1200	1200	1200	1200	1200	1200	3293	5313	7297	9255	11180	38062	63880
R14A	PLANT VENT PART.	CPM	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000
R14B	PLANT VENT IODINE	CPM	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
R14C	PLANT VENT GAS LOW	CPM	400	400	400	400	400	400	400	400	400	400	400	400	400	3655
R14D	PLANT VENT GAS MID	CPM	10	10	10	10	10	10	10	10	10	10	10	10	10	10
R14E	PLANT VENT GAS HIGH	CPM	10	10	10	10	10	10	10	10	10	10	10	10	10	10
R15	COND. AIR EJECTOR	CPM	10	10	10	10	10	10	10	10	10	10	10	10	10	10
R19A	SG "A" BLOWDOWN	CPM	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
R19B	SG "B" BLOWDOWN	CPM	1000	1001	1001	1001	1001	1000	1000	1000	1000	1000	1000	1000	1000	1000
R19C	SG "C" BLOWDOWN	CPM	500	500	500	500	500	500	500	500	500	500	500	500	500	500
R23P	RADWASTE BLDG PART.	CPM	60	60	60	60	60	60	60	60	60	60	60	60	60	60
R23I	RADWASTE BLDG IOD.	CPM	10	10	10	10	10	10	10	10	10	10	10	10	10	10
R23NG	RADWASTE BLDG GAS	CPM	20	20	20	20	20	20	20	20	20	20	20	20	20	20
R31A	MAIN STEAM "A"	mR/hr	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
R31B	MAIN STEAM "B"	mR/hr	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
R31C	MAIN STEAM "C"	mR/hr	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
R32A	CV HIGH RANGE	R/hr	1	1	1	1	1	1	1	1	1	1	1	1	1	1
R32B	CV HIGH RANGE	R/hr	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	CV OUTSIDE @ "X"	mR/hr	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48
R33	MONITOR BLDG. AREA	mR/hr	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3