U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-461/94010(DRSS)

Docket No. 50-461 License No. NPF-62

Licensee: Illinois Power Company
500 South 27th Street
Decatur, IL 62525

Facility Name: Clinton Power Station

Inspection At: Clinton Site, Clinton, Illinois

Inspection Conducted: May 3-6, 1994

Inspectors: J. Foster 5/25/94
J. Foster Date

J. W. McCormick-Barger for 5/25/94
R. Jickling Date

Accompanying Personnel: P. Brochman
R. Doornbos
D. Denham

Approved By: J. W. McCormick-Barger 5/25/94
J. W. McCormick-Barger, Chief Date
Radiological Programs Section

Inspection Summary

Inspection on May 3-6, 1994 (Report No. 50-461/94010(DRSS))
Areas Inspected: Routine, announced inspection of the Clinton Plant's emergency preparedness (EP) exercise involving review of the exercise scenario (IP 82302), observations by five NRC representatives of key functions and locations during the exercise (IP 82301), and follow-up on licensee actions on previously identified items (IP 82301). One aspect of the operational status of the EP program (training) (IP 82701) was reviewed by an inspector.
Results: No violations or deviations were identified. Overall performance during the exercise was excellent. Performances in each facility and offsite field monitoring teams were very good to excellent. A previous Inspection Followup Item regarding usage of checklists in the TSC was closed. An Inspection Followup Item unrelated to the exercise was issued to track licensee proposed changes to its key response personnel training program to include a description of important elements of the NRC and other federal agencies incident response programs.

DETAILS

1. NRC Observers and Areas Observed

J. Foster, Control Room Simulator (CRS), Technical Support Center (TSC), Emergency Operations Facility (EOF), Operations Support Center (OSC)
R. Jickling, EOF
R. Doornbos, CRS
P. Brochman, TSC
D. Denham, OSC
T. Reidinger, offsite monitoring teams

2. Persons Contacted

Illinois Power Company (IP)

*R. Bedford, Supervisor, NSSS Systems
*M. Black, Administrative Clerk, Emergency Planning
*W. Bousquet, Director - Plant Support Services
*S. Buck, Project Specialist
*J. Cook, Vice President
*M. Dodds, Supervisor, Radiological Operations
*W. Donovan, Staff Specialist
*T. Elwood, Supervisor- Licensing Operations
*K. Evans, Supervisor, Emergency Exercises
*L. Everman, Director, Plant Radiological Protection
*C. Huttes, Principal Assistant
*G. Kephart, Supervisor - Radiological Support
*R. Kerestes, Director - Nuclear Strategic Change
*J. Lewis, Supervising Specialist - NPAG
*M. Lyon, Director - Emergency Response
*J. Miller, Manager - Nuclear Station Engineering Department (NSED)
D. Miller, CPS Chief Radiological Scientist
R. Morgenstern, CPS Plant Manager
*D. Morris, Director, Nuclear Assessment
*J. Palchak, Manager - Nuclear Planning and Support
*B. Paulsen, Media Relations
*R. Phares, Director - Licensing
*E. Rau, Senior Instructor - Requalification
*M. Reandeau, Licensing Specialist
*T. Roe, Supervisor - Maintenance Services
*E. Schwitzer, Supervisor - Nuclear
*D. Smith, Supervisor, Security
*F. Spangenberg, III, Nuclear Strategic Change leader
*D. Thompson, Manager - Nuclear Training
*E. Turner, Nuclear Program Controller
D. Waddell, Director - Programs & Administration
*R. Weedon, Assistant Director, Plant Radiological Protection
*J. Wemlinger, Assistant Director Plant Maintenance
*R. Wyatt, Manager - Nuclear Assessment
*W. Yarosz, Supervisor, Emergency Planning
*P. Yocum, Director - Plant Operations

The inspectors also contacted other licensee and contractor personnel during the course of this inspection.

* Denotes those present during the exit interview on May 6, 1994.

3. Licensee Action on Previously Identified Items (IP 82301)

(Closed) Inspection Followup Item No. 50-461/93008-01: During the 1993 exercise, a performance weakness was identified when checklists were poorly utilized in the TSC. The use of checklists by TSC personnel was considerably improved from that previous exercise and the Inspection Followup Item from the previous exercise is closed.

4. General (IP 82302)

An announced, daytime exercise of the licensee's emergency plan was conducted at the Clinton Plant on May 4, 1994. This plume phase exercise included the partial scale participation of the State of Illinois, and Clinton and DeWitt counties. The exercise tested the capabilities of the licensee and offsite agencies to respond to an accident scenario resulting in a simulated release of radioactive effluent. The exercise demonstrated that the onsite emergency plans are adequate and that the licensee is capable of implementing them.

The performances of State and local response organizations were evaluated by representatives of the Federal Emergency Management Agency (FEMA), which will document its findings in a separate report.

The licensee conducted preliminary critiques immediately following the exercise. The inspectors presented their preliminary findings at an exit interview conducted on May 6, 1994. NRC and FEMA representatives summarized their organizations' preliminary findings at a public critique hosted by FEMA at the Dewitt County Emergency Operations Center on May 6, 1994.

The attachments to this inspection report describe the licensee's scope of participation and the 1994 exercise scenario.

5. General Observations (IP 82301)

The licensee responded to the accident scenario in an orderly and timely manner in accordance with its emergency plan and related procedures. If scenario events had been real, the actions taken by the licensee would have been sufficient to mitigate the accident and permit State and local authorities to take appropriate actions to protect public health and safety.

6. Specific Observations (IP 82301)

a. Control Room Simulator (CRS)

Overall operator performance in the simulator was very good.

The Unusual Event (UE) and Alert notifications were correct and timely. The Shift Supervisor (SS) correctly declared an Unusual Event (UE) and an Alert in a timely manner and in accordance with the plant's emergency action levels (EALs). State, county, and simulated NRC officials were initially notified of both declarations within the regulatory time limits. The simulated NRC duty officer was also given additional information.

The plant's public address (PA) system was used to inform onsite personnel of the emergency declarations, their bases, and any onsite protective actions.

Crew communications were good, repeat backs and three part communications were consistent throughout the exercise.

Crew briefings were never completed, as the Senior Reactor Operator (SRO) did not take command and require everyone's attention during briefings (i.e., plant pages and telephone communications were going on during crew briefings).

Overall plant procedure usage was effective and correctly implemented. Control room personnel demonstrated excellent teamwork and knowledge of technical specification requirements and emergency operating procedures associated with reactor coolant system leakage.

Crew members actively pursued alternative methods of water injection into the vessel throughout the drill (They did not give up on operating a system after it did not work correctly the first time.)

Phones in the simulator (behind the control panels) were loud (rings) and caused unnecessary distractions to the SRO.

Telephones to be used for Operations and maintenance communications were unusable for maintenance and sometimes usable for operations only if operations personnel called in. Calling out rarely worked on the operations telephone.

The simulator had two failures during the drill.

(1) The input/output overrides on the simulator failed, which resulted in the loss of realism to the CRS operators, as valve and pump indications did not reflect the required valve/pump conditions following the failures.

(2) The simulator "went out of bounds." The reason for it going "out of bounds" was known prior to the drill but software changes to correct this problem were not put into the training load for the simulator prior to the drill.

No violations or deviations were identified.

b. Technical Support Center (TSC)

The performance in the TSC was very good. The TSC was fully staffed and activated within 41 minutes of the Alert declaration. The transfer of command and control from the Shift Supervisor in the CRS to the Station Emergency Director (SED), in the TSC was very good. The SED ensured he was adequately briefed and that TSC and OSC personnel understood the current plant status and were ready to take control.

Declarations of the Site Area Emergency (SAE) and General Emergency (GE) were timely and based on a proper evaluation of plant conditions. Notifications to State and federal agencies were made within the required time limits. Protective action recommendations for the GE were appropriate.

Site accountability was performed at the Alert level rather than the SAE due to concerns that personnel might have been injured in the generator explosion. This was a prudent decision. Accountability was simulated in this exercise. Communications within the various groups in the TSC and between the TSC and OSC was very good. Communications between the TSC and the CRS were acceptable. Some confusion existed between simulator indications and reports from the field teams that equipment had been repaired.

The use of status boards was generally very good; however, some problems were noted with the Critical Plant Information and Major Problem status boards. Problems such as water level reaching TAF (top of active fuel) or core damage occurring were not annotated on the Major Problem board until after the inspector asked a question.

Periodic briefings by the SED to TSC, OSC, and EOF personnel were comprehensive and discussed current plant status and priorities for repair activities. All of the briefings were performed by the SED. Control of personnel noise levels was quite good. Communications on establishment of habitability and monitoring personnel exposure were good.

The transfer of command and control to the EOF occurred as the GE was being declared. This caused some confusion with approving the notification to State agencies. Discussions between the SED and emergency manager (EM) in the EOF were thorough. Once the decision to declare a GE was made, it might have been more

effective had the TSC retained command and control until notifications and associated actions were completed.

During the reflood phase of the scenario, operations and engineering discussed deviating from the emergency operating procedures (EOP) on how high to reflood the reactor vessel, to try and limit the spread of core debris from the reactor vessel. Based on the decision to deviate from the EOPs, 10 CFR 50.54(x) was invoked. The use of 50.54(x) was conservative.

The use of procedures and technical information by the TSC staff was very good. Evaluation of core damage conditions and communication of this condition to the SED was very good. Discussions of conditions necessary to obtain a representative Post Accident Sampling System (PASS) sample were thorough. The engineering table's evaluation of plant data was generally very good; however, the inspectors believed that further questioning should have been done concerning the hydrogen concentrations in the containment, as well as the loss of suppression pool level. The use of checklists by TSC personnel improved considerably from the previous exercise.

A limited discussion of the items which would be considered during the Recovery phase was conducted at the end of the exercise. This discussion of recovery actions was generally thorough. The best discussions were in the radiological protection (RP) and administrative support areas. Efforts in the engineering area during recovery discussions were adequate but seemed to focus on actions to restore the plant to operation. Given the level of core damage, questions on subcriticality and coolable core configuration, and long term decay heat removal from the core were not discussed very thoroughly. Discussions of what equipment could be quarantined (due to multiple equipment failures) and what equipment would have to be repaired immediately did not occur.

No violations or deviations were identified.

c. Operations Support Center (OSC) and Inplant Teams

The OSC was activated and staffed with knowledgeable individuals in a timely manner. The OSC Supervisor took command and control early, reporting to the facility by 0845; a full contingent of support staff were in place by shortly after 0900 when the OSC supervisor held the first OSC briefing.

Habitability within the OSC was initially checked by the health physics organization (air and smear sampling as well as ambient surveys) and checked on a regular (approximately hourly) basis throughout the exercise.

The assembly, briefing, dispatch, tracking, and debriefing of Emergency Teams was well done. The OSC staff effectively used

status boards to track the assignments and status of deployed inplant teams. Team briefings emphasized the need for personal safety, the use of proper protective equipment, the expected routes of travel and activities, as well as the need for frequent radioing back of activities accomplished and the reporting of any unusual findings. In addition, some teams were rerouted to accomplish additional tasks while in the forward area. Status boards were used effectively and were in sight of the OSC management team so that they could track teams and the personnel availability of others should the need arise. The use of colored name tags greatly aided in the identification of team composition and in the availability of personnel for teams not yet assembled or requested.

The OSC Supervisor and his assistants maintained good communications with the dispatched teams and in frequent face-to-face communications with the TSC Assistant SED.

Weak lighting conditions (i.e., burned-out fluorescent tubes in a number of overhead fixtures) were noted within the OSC, especially in the Briefing/Debriefing area, and the absence of fixed emergency lights in the OSC was also noted. Portable battery operated lamps were placed on each of the working tables within the OSC by the Status Board Operator during activation, and specifically used in the Briefing Area during the exercise. All other equipment for the various teams (e.g., fire brigade, rad protection, etc.) was available in sufficient quantities and in good working order.

The use of dose and dose rate terminology during the briefing session discussions was lax. Turn-around dose rates and doses were expressed in units of R, rather than in Rem/hr or mrem/hr for dose rates, and in R (Roentgens) rather than in the more applicable units of rem for dose.

There were good initial discussions of in-plant priority issues during the brief (approximately 30-minute) recovery phase discussions. These focused on the ability to do damage assessment and radiological protection, with radiation protection issues focussing on staff ingress and egress and the need to maintain doses As-Low-As-Reasonably-Achievable (ALARA).

No violations or deviations were identified.

d. Emergency Operations Facility (EOF)

Personnel efficiently set up their respective functional areas. All responding EOF personnel signed in on the magnetic staffing status board. Minimum staffing was achieved within approximately 22 minutes of the Alert PA announcement.

The EOF took command and control of emergency response approximately 34 minutes after declaration of a SAE. Good discussions were held regarding whether the Turbine Building explosion could be a security situation or not, the potential for an unmonitored radiological release through the Turbine Building smoke vents, and the response to the State's over conservative protective action order.

There was overall excellent use of the EOF status boards. Status board keepers began updating their boards immediately after signing in on the status boards. During the emergency exercise the status boards were continually and promptly updated.

Meteorological data and other important information was displayed on the status boards very early in the activation of the EOF. This helped to inform responding personnel of emergency conditions as they arrived at the facility.

The EOF speaker system was used very well during the exercise. The briefings from the Emergency Director in the TSC were broadcast throughout the EOF. These TSC briefings were detailed and periodic; however, occasionally the Emergency Director (ED) did not start or end his broadcast briefings with "This is a drill".

Approximately four minutes after taking command and control of the emergency response and approximately ten minutes after the General Emergency (GE) declaration, the EM notified the EOF ED he was leaving the EOF to brief the NRC Site Team. The EM was out of the facility for approximately eight minutes during a very critical time of the emergency. Delegating the NRC briefing to the EOF ED or postponing the briefing for a few minutes until the emergency stabilized might have been more effective.

The first facility briefing by the EOF Emergency Manager (EM) was approximately 58 minutes after the announcement for the Alert declaration. The EM relied heavily on the TSC broadcast announcements. When the EM did facility briefings, they were short and did not provide much additional information on plant conditions or emergency activities. This did not appear to adversely affect the operations of the EOF.

A problem with the mobile continuous air monitor was noted regarding the chart paper not moving. This was corrected by an I&C Technician when identified by the inspectors.

Dose assessment using the computerized dose projection program MESOREM Jr. was very good. Prior to the radiological release, dose assessors proactively calculated "what ifs" and dose speculations. After the radiological release, dose assessment calculations were periodically performed.

Good discussions regarding protective action changes were observed. The State over conservatively evacuated out to five miles downwind after the protective action recommendation (PAR) from the licensee was to evacuate out to two miles and shelter up to five miles downwind. There was a discussion concerning whether to upgrade the PAR (to be consistent with the State actions) or not, with the appropriate decision to follow procedures and retain the protective actions already recommended.

There was a good communication interface with the offsite authorities. Questions from offsite authorities were rapidly and efficiently answered. There was some confusion regarding early State indications of a radiological release and reactor water levels (where did the water go or come from).

Status board keepers used 1R and 4R instead of 1R/hr and 4R/hr. This could be confusing to offsite officials and could cause problems in situations such as "turn back" doses or dose rates. The habitability of the EOF was not updated on the status board after the initial survey early in the scenario.

Initial recovery planning discussions began late in the exercise. The incident response roles of NRC and the Department of Energy were discussed by the Team Leader. Correct decisions were made not to reclassify the GE and not to relax offsite protective actions.

No violations or deviations were identified.

e. Offsite Radiological Monitoring Teams

The overall performance of the field teams was excellent.

Upon the Alert declaration, the field teams responded promptly in reporting to the EOF. Field team personnel were proactive in obtaining their emergency response equipment. The Field Team Coordinator conducted a good initial briefing explaining plant priorities to the field teams.

Team dispatch was excellent. Teams dispatched from the EOF were given briefings regarding plant conditions and were dispatched in a timely manner to determine any potential release plume. Five offsite radiological monitoring teams (OMTs) were dispatched during the exercise.

Four OMTs consisting of a health physics technician (HPT) and a driver were observed. In each case, the technician properly took direct radiation level readings and air samples. Survey results were adequately documented and reported.

Field teams conducted beta/gamma exposure rate measurements in the field to locate and determine the direction and magnitude of the plume. Radiological air sample surveys were documented and analyzed (simulated) upon return to the EOF Environmental Laboratory.

The field team coordinator provided frequent briefings to the field teams. These briefings were generally thorough. However, the briefings could have included more information regarding the reactor coolant system status, or protective action recommendations.

Communications with the field teams were excellent. Field teams promptly informed the field team coordinator when radiological conditions changed significantly. The EOF staff directed the field teams to applicable area sectors without any noticeable delays. Radiological data from the field teams was properly plotted by the EOF environmental staff.

Teams were observed to make optimum use of field survey maps to assess plume direction and magnitude. Field team tasks were prioritized and recommendations were made to appropriate teams upon completion of their progress.

No violations or deviations were identified.

7. Exercise Objectives and Scenario Review (IP 82302)

The exercise's scope and objectives and complete scenario manuals were submitted for NRC review within the proper timeframes.

Challenging aspects of the scenario included: use of the CRS, which was electronically linked to computer terminals in the TSC and EOF to provide greater realism to the licensee's protective measures and reactor safety staffs; deployment of offsite monitoring teams; and the use of the Joint Public Information Center.

No violations or deviations were identified.

8. Exercise Control and Critiques (IP 82301)

There were sufficient numbers of personnel to control the exercise. No significant examples of controllers prompting participants to initiate actions, which might not otherwise have been taken, were identified.

Information being provided to CRS operators from field teams, OSC, and TSC was not provided in a timely manner to the simulator operators. This caused the CRS operators to expect valves and/or pumps to be operational before the simulator operator had any knowledge of the required valve/pump condition.

A smooth, rapid transition from simulator information to the paper backup was observed after the loss of the simulator.

The licensee's controllers held initial critiques in each facility with participants following the exercise. The licensee provided a summary of its strengths and weaknesses, which were in excellent overall agreement with the inspectors' findings, preceding the exit interview.

9. Operational Status of the Emergency Preparedness (EP) Program (IP 82701)
Training

Discussion with licensee personnel indicated that training for key decisionmakers in the EOF and TSC did not include training on the NRC/other federal agencies incident response programs. A review of the licensee's actions to resolve this issue will be tracked as Inspection Followup Item (50-461/94010-01(DRSS)).

No violations or deviations were identified.

10. Inspection Followup Items

Inspection Followup Items are matters which have been discussed with Illinois Power Company management, will be reviewed further by the inspectors, and involve some action on the part of the NRC, Illinois Power Company or both. Followup Items disclosed during the inspection are discussed in paragraph 9.

11. Exit Interview

The inspectors held an exit interview on May 6, 1994, with those licensee representatives identified in Section 2 to present and discuss the preliminary inspection findings. Specific items discussed during the exit meeting are discussed below. The licensee indicated that none of the matters discussed were proprietary in nature.

- Overall exercise performance was considered as excellent.
- Performances in each facility and the offsite teams were briefly discussed.
- The previous Inspection Followup Item regarding usage of checklists in the TSC was closed.
- An Inspection Followup Item unrelated to the exercise was utilized to track licensee proposed changes to its key response personnel training program to include a description of important elements of the NRC and other federal agencies' incident response programs.

Attachments:
1. 1994 Clinton Exercise Scope and Objectives
2. 1994 Clinton Exercise Scenario Summary

CLINTON POWER STATION
1994 EXERCISE OBJECTIVES

Primary Objective:

Demonstrate the capability to implement the Clinton Power Station (CPS) Emergency Plan to protect the health and safety of the general public as well as plant personnel.

Supporting Objectives:

1. Demonstrate the capability of the Main Control Room Staff to recognize the emergency conditions, to classify the event, and to perform mitigating actions.

2. Demonstrate the capability to quickly and accurately identify and classify the accident as conditions change.

3. Once the emergency is classified or reclassified, to demonstrate the capability to notify the Illinois Emergency Management Agency (IEMA), the Illinois Department of Nuclear Safety (IDNS) and the Nuclear Regulatory Commission (NRC) within the time required by implementing procedures.

4. Demonstrate the capability to properly notify Illinois Power Company (IP) Emergency Response Organization personnel in accordance with implementing procedures.

5. Demonstrate the ability to notify site personnel of the emergency condition.

6. Demonstrate the capability to activate the Technical Support Center (TSC), Emergency Operations Facility (EOF), Operations Support Center (OSC), Headquarters Support Center (HSC) and Joint Public Information Center (JPIC) in accordance with implementing procedures.

7. Demonstrate the clear transfer of Command Authority from the Shift Supervisor to the Station Emergency Director, and to the Emergency Manager in accordance with implementing procedures.

8. Demonstrate the effective use of checklists in the Emergency Response Facilities.

9 Demonstrate the capability to assess accident conditions by performing reactor core damage estimations and by performing offsite dose assessments.

10. Demonstrate the capability to dispatch and control Field Monitoring Teams for plume tracking and environmental monitoring.

11. Demonstrate the capability of Field Monitoring Teams to conduct field radiological surveys, including the collection and analysis of air and radioiodine samples, and to collect, as needed, additional liquid, vegetation and soil samples.

12. Demonstrate the capability to receive, analyze, and store field samples in the EOF Environmental Laboratory while following approved procedures and acceptable radiological controls.

13. Demonstrate the capability of the Operations Support Center to control Emergency Teams.

14. Demonstrate implementation of effective health physics controls by the Emergency Teams.

15. Demonstrate the capability to provide dosimetry and monitor radiation exposure to onsite emergency workers and Field Monitoring Teams.

16. Demonstrate the capability to effectively communicate reports, information and assessments of the situation among participating principal command and control centers, personnel and emergency teams.

17. Demonstrate the capability to make appropriate, timely public protective action recommendations to offsite authorities in accordance with implementing procedures.

18. Demonstrate timely, effective information flow from the Emergency Operations Facility (EOF) to the Joint Public Information Center (JPIC).

19. Demonstrate the capability to provide accurate, timely information to the news media from the JPIC.

20. Demonstrate the ability to discuss appropriate measures associated with recovery activities in order to restore the plant to a pre-emergency condition.

21. Demonstrate the capability of the First Aid Team and Radiation Protection personnel to properly respond to an accident involving a contaminated and injured individual.

22. Demonstrate the capability to transport an injured/contaminated person to an offsite medical facility and to provide support as necessary.

23. Demonstrate the capability to critique objectively the emergency response and to identify deficiencies. This will require an evaluation of items such as (1) the operation of the Emergency Response Facilities, (2) suitability of individuals in fulfilling emergency assignments and (3) the adequacy of emergency procedures and equipment available.

1994 Graded Exercise
94-14

INITIAL CONDITIONS

The plant is currently operating at 100% power in the 203rd day of continuous operation. High Pressure Core Spray (HPCS) is out of service for maintenance to replace the motor. A General Electric (G.E.) Service Information Letter (SIL) has been issued to all BWR-6 plants for Jet Pump Beam Failure, especially if Feedwater (FW) has high oxygen content greater than G.E. design recommendations. One Rod Drive (RD) pump is out of service for gear replacement.

SUMMARY OF EVENTS

At 0745 a Facility person fell inside the sort tent. This person fell on some angle iron that pierced his right shoulder. He pulled himself off of the angle iron and is bleeding. Transport to the hospital will be necessary. Contamination levels on and around the wound are 1,200 ccpm. This should result in a NOTIFICATION OF UNUSUAL EVENT being declared in accordance with EC-02, Symptom 15.6, TRANSPORTATION OF CONTAMINATED INJURED PERSON FROM SITE TO OFFSITE HOSPITAL.

At 0830 the plant experiences a Generator Bushing Box failure which leads to a Hydrogen (H_2) leak. The H_2 leak leads to a H_2 burn/explosion, which trips the generator and leads to a reactor scram. This should result in an ALERT being declared in accordance with EC-02, Symptom 15.3, KNOWN EXPLOSION CAUSING DAMAGE TO THE FACILITY AFFECTING STATION OPERATION. As a result of the scram, two jet pump beams broke.

When either Residual Heat Removal (RHR) 'B' or 'C' System is started, the Division II DC bus trips and renders any remote operation of Division II equipment ineffective.

Since HPCS is out of service and will not be recoverable until later in the exercise, it is expected that the Main Control Room will use the Motor Driven Reactor Feed Pump (MDRFP) and/or Reactor Core Isolation Cooling (RCIC). After 0900 a Feedwater leak in the Auxiliary Building Steam Tunnel (ABST) will occur, flooding the Reactor Core Isolation Cooling (RCIC) Room. This should lead to a SITE AREA EMERGENCY being declared in accordance with EC-02, Symptom 5.1, LOSS OF COOLANT INVENTORY GREATER THAN MAKEUP PUMP CAPACITY.

With loss of all high pressure injection systems, water level will start to drop. After water level drops to the top of active fuel, operators will depressurize the reactor and attempt to inject with low pressure injection systems.

After RHR 'A' has injected into the vessel a short time, a leak on the suction piping will occur. This will eventually flood the RHR 'A" Room and short out the pump. Some RHR 'B' and 'C' valves will fail. When Low Pressure Core Spray (LPCS) is started, it will at first appear to be operating normally, but no flow will reach the Reactor Vessel. The cause of this is an uncoupled testable check valve. The disc of the testable check valve is wedged into the valve body outlet. This should lead to a GENERAL EMERGENCY being declared in accordance with EC-02, Symptom 7.2, PROLONGED LOSS OF DECAY HEAT REMOVAL CAPABILITY THAT COULD LEAD TO CORE MELT.

Radiation levels begin to increase rapidly onsite. Soon radiation levels offsite are noticed. After emergency teams are successful in repairing Division II RHR valves and/or repairing HPCS the reactor vessel will be reflooded. The rest of the Exercise will be spent discussing actions necessary to recover. After all State and utility objectives are demonstrated the Exercise will terminate.

1994 GRADED EXERCISE
94-14
TIME LINE

EVENT	APPROXIMATE TIME
Contaminated Injured Person	0745
NOTIFICATION OF UNUSUAL EVENT Declared In Accordance With EC-02, Symptom 15.6	0815
Generator Box Bushing failure	0830
Hydrogen Explosion and Generator Trip and Reactor Scram.	0830
Jet Pump Beam Failures	0830
ALERT Declared In Accordance With EC-02, Symptom 15.3	0845
Loss of Division II DC Bus	Immediately upon Initiation of RHR 'B' or 'C'
Feedwater Leak Develops	0900 - 0920
Loss of RCIC Due to Flooding	0910 - 0930
SITE AREA EMERGENCY Declared In Accordance With EC-02, Symptom 5.1	0945
Top of Active Fuel Reached	1015
Leak in RHR 'A' Room LPCS Check Valve Broken	1030
Loss of RHR 'A' Pump	1045
GENERAL EMERGENCY Declared In Accordance With EC-02, Symptom 7.2	1100
Repair of Division II RHR Valves and/or HPCS Completed	1230 - 1300
Drill Terminated Critiques Begin	1400