



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199

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Report Nos.: 50-259/95-32, 50-260/95-32, and 50-296/95-32

Licensee: Tennessee Valley Authority
6N 38A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Docket Nos.: 50-259, 50-260, 50-296

License Nos.: DPR-33, DPR-52,
and DPR-68

Facility Name: Browns Ferry Nuclear Plant Units 1, 2, and 3

Inspection Conducted: July 24 - 28, 1995

Inspector: W. M. Sartor, Jr. 9/8/95
Date Signed

Accompanying Personnel: G. Bethke
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Approved by: K. P. Barr, Chief 9/8/95
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. This NRC/FEMA evaluated exercise was conducted from 8:00 a.m. to 1:52 p.m. on July 26, 1995. The inspection (the scope of which included the Central Emergency Control Center in Chattanooga) focused on the adequacy of the licensee's emergency response program, the implementation of the Radiological Emergency Plan and procedures in response to the simulated emergency conditions, and the effectiveness of the emergency response training program as reflected by the players' performance during the exercise.

Results:

In the areas inspected, violations or deviations were not identified. The exercise demonstrated that the onsite emergency plans were adequate and that the licensee was capable of implementing them. An exercise strength was the activation and control of the Operational Support Center which directed 24 repair team missions in an effective and timely manner.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *T. Adkins, Program Specialist, Emergency Preparedness
- *R. Barnes, Manager, Industrial Safety
- *S. Bugg, Manager, RadCon
- *T. Cornelius, Manager, Emergency Preparedness
- *T. Feltman, Project Engineer, Emergency Preparedness
- *E. Hollins, Manager, Milestone/Recovery
- *J. Johnson, Manager, Site Quality
- *K. King, Project Engineer, Emergency Preparedness
- *J. Maddox, Manager, Maintenance/Modifications
- *B. Miller, Manager, Operations
- *G. Preston, Plant Manager
- *A. Reynolds, Supervisor, Radchem Shift
- *L. Riales, Manager, TVA Corporate RadCon
- *S. Rudge, Manager, Site Support
- *J. Semore, Sr. Lead Auditor, Nuclear Assessment and Licensing
- *T. Shriver, Manager, Nuclear Assessment and Licensing
- *R. Simpkins, Supervisor, Radiological Protection/RadCon
- *T. Smith, Manager, Training
- *J. Wallace, Site Licensing Compliance Engineer
- *S. Wetzel, Acting Compliance Manager
- *R. White, Manager, Fire Protection
- *H. Williams, Manager, Engineering and Materials

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

Nuclear Regulatory Commission

- *R. Musser, Resident Inspector

*Attended exit interview

Abbreviations used throughout this report are listed in the last paragraph.

2. Exercise Scenario (82302)

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

The scenario was reviewed in advance of the exercise and was discussed with licensee representatives. The scenario developed for this exercise was adequate to exercise the onsite and offsite emergency organizations of the licensee. The scenario also provided sufficient events for the State of Alabama and the local government agencies to exercise the different facets of their emergency response plans during this full participation exercise.

The inspector observed that the exercise controllers were knowledgeable and maintained scenario events on schedule. A suggested improvement to the events that occurred for this exercise was for the scenario development staff to search for more "cause and effect" failures in developing future scenarios. It was noted that the scenario for this exercise contained more than 10 unrelated component failures. This did not detract from the ERO's ability to demonstrate implementation of the emergency plan and procedures; however, it did limit the opportunity for emergency personnel to demonstrate problem-solving capabilities to a logical accident sequence.

No violations or deviations were identified.

3. Assignment of Responsibility (82301)

This area was observed to determine whether primary responsibilities for emergency response by the licensee had been specifically established and that adequate staff was available to respond to an emergency as required by 10 CFR 50.47(b)(1) and 10 CFR 50, Appendix E, Paragraph IV.A.

The inspectors observed that specific emergency assignments had been made for the licensee's ERO and there were adequate staff available to respond to the simulated emergency. The initial response organization was augmented by designated licensee representatives and the capability for long-term or continuous staffing of the ERO was discussed and planning for relief was initiated.

No violations or deviations were identified.

4. Onsite Emergency Organization (82301)

The licensee's onsite emergency organization was observed to determine whether the responsibilities for emergency response were defined, that adequate staffing was provided to insure initial facility accident response in key functional areas at all times, and that the interfaces were specified as required by 10 CFR 50.47(b)(2) and 10 CFR 50, Appendix E, Paragraph IV.A.

The inspectors determined that the licensee's onsite emergency organization was well defined and was effective in dealing with the simulated emergency. Adequate staffing of the ERFs was provided for the initial accident response. The licensee maintained a REP Duty List for insuring the required staff was available. The "Blue Team" was the designated team for the exercise and had also participated in a dress

rehearsal on June 14, 1995. The team promptly staffed the ERFs and the interfaces between the onsite organization and offsite support agencies were adequate to ensure prompt notification and support from offsite agencies as required.

No violations or deviations were identified.

5. 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 in the EOF were adequate, and whether other organizations capable of augmenting the planned response were identified as required by 10 CFR 50.47(b)(2) and 10 CFR 50, Appendix E, Paragraph IV.A.

The licensee's REP provided information for additional support and resources that may be called upon to assist in an emergency. The inspector determined that State and local staff could be accommodated at the CECC and the JIC and arrangements for requesting offsite assistance resources were in place.

No violations or deviations were identified.

6. 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.

Browns Ferry procedure EPIP-1, "Emergency Plan Classification Logic," provided for off-normal events to be classified into one of the four emergency classification categories. The licensee's staff made the following emergency classifications during the exercise:

- ▶ The conditions for an Alert began at about 8:15 a.m. when a fuel bundle was simulated to have been dropped in the Unit 2 Spent Fuel Pool. The Alert was declared by the Shift Operations Supervisor at 8:28 a.m. based on EAL "Damage or Dropped Fuel Bundle and Release of Radioactive Materials."
- ▶ The conditions for declaring a SAE began at about 10:00 a.m. with the initiation of an ATWS. The SAE was declared by the Site Emergency Director at about 10:03 a.m. based upon EAL "Core Thermal Power at >3% and Reactor Critical When Shutdown Required."

- ▶ The conditions for declaring a GE began at about 11:30 a.m. with the simulated failure of the Reactor Building to Torus Vacuum Breaker. The GE was declared by the Site Emergency Director at about 11:33 based upon EAL "Loss of 2 of 3 Fission Product Barriers with a Potential Loss of 3rd Barrier."

The above conditions were all evaluated and classified appropriately and timely in accordance with the classification procedure.

No violations or deviations were identified.

7. Notification Methods and Procedures (82301)

This area was observed to determine whether procedures had been established for notification by the licensee of State and local response organizations and emergency personnel; whether the content of initial and followup messages to response organizations had been established; and whether means to provide early notification to the populace within the plume exposure pathway EPZ had been established as required by 10 CFR 50.47(b)(5), 10 CFR Part 50, Appendix E, Paragraph IV.D.

An inspector observed that notification methods and procedures had been established and were used to provide information concerning the simulated emergency to the ODS in Chattanooga who in turn notified the State of Alabama. Notifications contained the appropriate information and were timely. Following the activation of the CECC, communications to the State were conducted from the CECC.

No violations or deviations were identified.

8. Emergency Communications (82301)

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

Communications between the licensee's ERO and offsite authorities were good throughout the exercise. Likewise, the communications among the licensee's ERFs were good. No communication-related problems of any significance were identified during the exercise.

No violations or deviations were identified.

9. Public Education and Information (82301)

This area was observed to determine whether information concerning the simulated emergency was made available for dissemination to the public as required by 10 CFR Part 50, Appendix E, Paragraph IV.D, and specific criteria in NUREG-0654, Section II.G.

Information was provided to the media and the public in advance of the exercise. During the exercise, the JIC was established in the Fine Arts Building at the Calhoun State Community College in Decatur, Alabama. Following the activation of the JIC, the licensee issued press releases and conducted joint State and licensee news briefings.

No violations or deviations were identified.

10. 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 Part 50, Appendix E, Paragraph IV.E, and specific criteria in NUREG-0654, Section II.H.

The inspectors observed the activation, staffing, and operation of selected ERFs and evaluated equipment provided for emergency use during the exercise.

- a. Simulator Control Room - An inspector observed that SCR personnel acted promptly to initiate emergency response to the simulated emergency. The SOS assumed the responsibilities as the SED and directed the site's response to the simulated emergency until relieved. Emergency procedures were readily available and used effectively. No equipment problems were observed.
- b. Technical Support Center - Staffing and activation of the TSC commenced promptly after the declaration of the Alert classification. The SOS/SED in the SCR provided an appropriately thorough turnover briefing to the SED in the TSC. The facility and equipment in the TSC were effectively used by the SED and his staff throughout the exercise. However, the inspector observed that personnel in the TSC on several occasions, both verbally and in written material, failed to include engineering units when stating a numerical value. This was particularly frequent and confusing in the case of radiological parameters.
- c. Operational Support Center - The process of activating and staffing the OSC was well organized and expeditious. The OSC was declared operational at 8:45 a.m. by the OSC Director with all designated positions staffed. The information, briefing, and dispatching of repair teams were observed to be performed proficiently. The OSC Director provided very effective command and control of facility operations, with concise and informative briefings on a periodic basis. There were no significant facility or equipment problems observed in the OSC. A total of 24 teams were effectively briefed and dispatched from the OSC.
- d. Central Emergency Control Center - The CECC was located in the Northeast corner of the sixth floor of Lookout Place in the TVA Chattanooga Office Complex. It was declared operational at

9:10 a.m. or approximately 40 minutes following the declaration of the Alert Classification. Following effective and efficient briefings at both the CECC staff and director level, the CECC Director informed the staff who was in charge and that the CECC was operational. The CECC provided adequate space and facilities for evaluating, coordinating and directing the overall activities involved in coping with the radiological emergency. Personnel were qualified, knowledgeable, and implemented their appropriate functions.

No violations or deviations were identified.

11. Accident Assessment (82301)

This area was observed to determine whether adequate methods, systems, and equipment of 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 Part 50, Appendix E, Paragraph IV.B, and specific criteria in NUREG-0654, Section II.I.

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

Radiological assessment activities were centered in the CECC. Dose assessments were performed using proper procedures for the initial puff-release and for both anticipated and other releases. The dose assessments were updated based upon integrated information from reactor systems status and trends, radiological monitoring, source term assumptions, and meteorological information in order to define the magnitude and area of the offsite impact. This information was coordinated closely with the site and provided to the State in a timely manner. After assuming control of the monitoring teams, the CECC deployed initial environmental sampling teams to appropriate locations to intercept the plume and re-direct teams to maintain doses as low as reasonably achievable.

No violations or deviations were identified.

12. Protective Responses (82301)

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

An inspector verified that the licensee had emergency procedures for formulating PARs for the offsite populace within the 10-mile EPZ. The inspector observed that the CECC Director and Staff were proactive in anticipating future reactor events to identify what protective actions would be needed if any. The TSC was involved in these discussions and shortly following the declaration of the General Emergency, a PAR was developed and provided to the State of Alabama. The CECC monitored the State's protective action decision and maintained cognizance of the status of offsite protective actions.

No violations or deviations were identified.

13. Radiological Exposure Control (82301)

This area was observed to determine whether means for controlling radiological exposures during an emergency were established and implemented for emergency workers, and that these means included exposure guidelines consistent with EPA recommendations as required by 10 CFR 50.47(b)(11), and specific criteria in NUREG-0654, Section II.K.

An inspector noted that radiological exposures were controlled throughout the exercise by issuing supplemental dosimeters to emergency workers and by periodic surveys in the ERFs. Exposure guidelines were in place for various categories of emergency actions.

No violations or deviations were identified.

14. Exercise Critique (82301)

The licensee's critique of the emergency exercise was observed to determine whether 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 Part 50, Appendix E, Paragraph IV.E, and specific criteria in NUREG-0654, Section II.N.

The licensee conducted player critiques following the exercise termination. A formal licensee critique of the emergency exercise was held on July 28, 1995, with exercise controllers, licensee management, and NRC personnel attending. The licensee reviewed the exercise objectives and evaluated the performance of the emergency organization in meeting the objectives.

No violations or deviations were identified.

15. Exit Interview

The inspection scope and results were summarized on July 28, 1995, with those persons indicated in Paragraph 1. The inspector described the areas inspected and discussed observations made during the inspection. Proprietary information is not contained in this report. Dissenting comments were not received from the licensee.

16. Federal Evaluation Team Report

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

17. Index of Abbreviations Used in This Report

ATWS	Anticipated Transient Without Scram
CECC	Central Emergency Control Center
CFR	Code of Federal Regulations
EAL	Emergency Action Level
EP	Emergency Plan
EPA	Environmental Protection Agency
EPIP	Emergency Plan Implementing Procedure
EPZ	Emergency Planning Zone
ERF	Emergency Response Facility
ERO	Emergency Response Organization
FEMA	Federal Emergency Management Agency
GE	General Emergency
JIC	Joint Information Center
NRC	Nuclear Regulatory Commission
ODS	Operations Duty Specialist
OSC	Operations Support Center
PAR	Protective Action Recommendation
REP	Radiological Emergency Plan
SAE	Site Area Emergency
SCR	Simulator Control Room
SED	Site Emergency Director
SOS	Shift Operations Supervisor
SPDS	Safety Parameter Display System
TSC	Technical Support Center

Attachments:
Exercise Goals and Objectives
and Narrative Scenario

BROWNS FERRY NUCLEAR PLANT (BFN) 1995 EMERGENCY PLAN NRC/FEMA GRADED EXERCISE

The 1995 BFN Radiological Emergency Plan Exercise will be a full scale exercise consisting of full participation by TVA and full participation by the State and Local Government emergency agencies.

EXERCISE GOALS

TVA's goals for the 1995 BFN NRC/FEMA graded exercise are as follows:

1. Allow plant and offsite personnel to demonstrate and test the capabilities of the emergency response organization to protect the health and safety of plant personnel and the general public in accordance with the Nuclear Power - Radiological Emergency Plan (NP-REP), Site Emergency Plan Implementing Procedures (EPIPs), and the Central Emergency Control Center (CECC) EPIPs.
2. Provide an interactive exercise to ensure proficiency of onsite and offsite emergency response capabilities.
3. Provide training for emergency response personnel.
4. Identify emergency response capabilities that are in need of improvement or revision.
5. Provide an interactive exercise to allow the State responders to demonstrate their proficiency in emergency response capabilities.

EXERCISE OBJECTIVES

A. Control Room/Simulator

1. Demonstrate ability of the Shift Operations Supervisor to recognize conditions, classify emergencies, make required notifications in a timely manner, and assume the initial responsibilities of the Site Emergency director.
2. Demonstrate ability of the Shift Operations Supervisor to maintain effective command and control of control room activities, prevent interference with classification analysis, dispatch and track response teams as needed prior to Technical Support Center activation, and periodically inform the control room staff of the status of the emergency situation.
3. Demonstrate ability of the control room staff to make timely determination of the cause of the incident, perform mitigating actions, keep onsite personnel informed of the emergency situation through periodic PA announcements prior to Technical Support Center activation, and a precise and clear transfer of responsibilities from the Control Room Staff to the Technical Support Center Staff.
4. Demonstrate ability of the control room staff to use proper procedures, maintain an accurate chronological account of events, and defer problems that cannot be quickly resolved to the Technical Support Center for resolution.
5. Demonstrate ability of the control room staff to continuously evaluate information, redefine/confirm conditions and event classifications, establish an effective flow of information between the Control Room, Technical Support Center, Operations Support Center, Central Emergency Control Center, and NRC.

B. Technical Support Center (TSC)

1. Demonstrate ability to perform a precise and clear transfer of responsibilities from the control room staff to the TSC staff and assume the primary responsibilities of the Central Emergency Control Center (CECC) prior to CECC activation.
2. Demonstrate the Site Emergency Director's (SED) ability to provide effective direction, command and control, to manage activities in a manner to prevent interference with classification, analysis, or mitigation of an event and to perform periodic briefings for TSC/OSC staff and personnel.
3. Demonstrate ability of the TSC staff to use proper procedures, solve problems related to incident identification and mitigation, and maintain an accurate account of events through chronological log keeping.
4. Demonstrate the TSC's ability to determine the appropriate sampling and monitoring required to support accident mitigation, perform timely assessments of onsite radiological conditions, and formulate, coordinate, implement, and track on site protective actions.
5. Demonstrate the TSC's ability to maintain effective communication between the Operations Support Center (OSC), Control Room, CECC, NRC, and between various groups within the TSC.
6. Demonstrate ability of the TSC to continuously evaluate available information, redefine/confirm plant conditions and event classifications.
7. Demonstrate the Site Vice President's proficiency serving as a corporate interface for the SED.
8. Demonstrate the maintenance of industry site security operation throughout the exercise.

C. Operations Support Center (OSC)

1. Demonstrate ability of the OSC Manager, through effective command and control, to coordinate and initiate activities in a timely manner, maintain effective communications between various groups within the OSC, and use of proper procedures in the coordination and initiation of activities.
2. Demonstrate ability of the OSC staff to properly plan required tasks, promptly dispatch response teams, track response teams, and maintain communication with the response teams.
3. Demonstrate ability of the OSC response teams to quickly and effectively enter the plant, make necessary repairs or inspections, and perform an adequate de-brief upon returning to the OSC.
4. Demonstrate ability of the OSC staff to maintain accurate status board information, maintain an accurate account of equipment, plant, and response team status through accurate chronological logs, and effective transfer of information between the OSC, TSC, RADCON laboratory, and Chemistry laboratory.
5. Demonstrate ability of the RADCON personnel to use proper procedures and follow good RADCON and ALARA practices to effectively support accident mitigation efforts, ensure adequate worker protection, and perform effective inplant and site boundary surveys during radiological emergencies.
6. Demonstrate ability of the OSC to track changing radiological conditions through survey results and/or inplant monitors, control internal and external exposures and personnel contamination of onsite emergency workers, and incorporate the information into personnel protective actions and exposure tracking.

D. Central Emergency Control Center

1. Demonstrate ability of the Operations Duty Specialist to make initial notifications to State agencies in a timely manner.
2. Demonstrate ability to perform precise and clear transfer of responsibilities from the TSC staff to the CECC staff.
3. Demonstrate ability of the CECC Director to maintain effective command and control within the CECC and establish and maintain effective communication between various groups within the CECC
4. Demonstrate ability of the CECC to perform, update, coordinate offsite activities with the STATE and provide protective action recommendations in a timely manner.
5. Demonstrate ability to effectively transfer radiological survey information from the field, keep the field teams informed of emergency conditions, and adequately monitor and control the exposure levels of offsite personnel.
6. Demonstrate ability of the CECC staff to maintain detailed chronological logs of plant status, ongoing activities, external TVA correspondence, corrective actions taken, protective action recommendations and to continuously evaluate available information and redefine/confirm the conditions and event classifications.
7. Demonstrate ability of the CECC staff to effectively call upon and obtain TVA corporate, vendor, or other outside support resources as appropriate or needed. (technical, logistics, financial, federal, industrial, etc.)
8. Demonstrate ability of the CECC staff to establish and maintain effective communication between the various emergency centers (Control Room, TSC, RMCC, State/Local EOC) and NRC including NRC responders.
9. Demonstrate ability of the CECC staff to analyze current plant conditions, identify projected trends, determine the potential consequences, and maintain CECC status board information accurate.
10. Demonstrate ability to establish and maintain adequate security access control for the CECC.
11. Demonstrate proficiency of the CECC staff with emergency procedures, equipment, and methods.

E. EXERCISE SPECIFIC

1. Demonstrate ability of the exercise controllers to perform their function without prompting, coaching, or otherwise interfering with the performance of exercise players.
2. Demonstrate that personnel participating in the exercise were not pre-positioned prior to commencement.
3. Conduct of the exercise players demonstrated that they did not have prior knowledge of scenario details or initiation time.
4. The scenario should demonstrate technical accuracy, anticipation of significant player actions, and sufficiently difficult to exercise capabilities of the emergency plan.
5. Demonstrate ability to conduct post exercise critiques.
6. Demonstrate adequacy of control room and emergency centers facilities, resources, equipment, and communication systems to support emergency operations.

7. Demonstrate ability to alert and mobilize personnel for emergency response centers and activate the emergency centers in a timely manner.
8. Demonstrate ability to conduct habitability surveys for the TSC, OSC, control room, and all assembly areas.
9. Demonstrate ability to maintain effective communication between the Technical Support Center, Operations Support Center, Central Emergency Control Center, Control Room / Simulator, and NRC.
10. Demonstrate ability to coordinate plans for termination of the emergency and recovery operation.

F. MEDICAL EMERGENCY RESPONSE TEAM

1. An Incident Commander is promptly dispatched to the scene of the emergency where he/she demonstrates ability to establish a command post, setup communication with the main control room, and effectively interact with the Medical Emergency Response Team (MERT) leader.
2. The MERT demonstrates the ability to arrive on the emergency scene in a timely manner, assess medical injuries, identify hazards, and provide medical care.
3. The priority of medical and radiological concerns was properly established and contamination control measures were implemented for personnel and equipment during the treatment, transport, and following transport of contaminated or potentially contaminated injured personnel.
4. Security personnel demonstrate their ability to provide sufficient and effective control at the scene of the emergency.
5. Demonstrate ability to determine means of transportation for injured personnel.
6. RADCON personnel demonstrates their ability to monitor MERT exposures and provided sufficient radiological information to the Incident Commander and / or MERT Leader.
7. The Incident Commander and MERT demonstrates ability to communicate and interact effectively.

G. ENVIRONMENTAL MONITORING

1. Demonstrate the ability of the Environmental Monitoring Teams to effectively utilize their procedures to perform dose rate surveys, collect and analyze radiological samples, and conduct other prescribed radiological activities.
2. Demonstrate the Environmental Monitoring Team's abilities to adhere to appropriate contamination control procedures in field conditions.
3. Demonstrate the adequacy of the Environmental Monitoring Vans to support emergency operations. (monitoring equipment, supplies, communication equipment, etc.)
4. Demonstrate ability to timely and effectively activate and establish communication with environmental monitoring vans.
5. Demonstrate ability of the SITE to timely and effectively transfer control of the environmental monitoring vans.
6. Demonstrate ability to effectively dispatch and control Radiological/Environmental Monitoring Teams, coordinate with the State when applicable, and obtain, analyze, and utilize meteorological, onsite and offsite radiological conditions, and source term information to develop dose assessments in a timely manner.

6. Demonstrate ability to effectively dispatch and control Radiological/Environmental Monitoring Teams, coordinate with the State when applicable, and obtain, analyze, and utilize meteorological, onsite and offsite radiological conditions, and source term information to develop dose assessments in a timely manner.

H. PUBLIC INFORMATION / JOINT INFORMATION CENTER

1. Demonstrate the ability of the CECC Communications staff to coordinate information with non - TVA agencies.
2. Demonstrate the ability of the CECC Communications Staff to develop timely accurate news releases.
3. Demonstrate the ability of the CECC Information Manager to exercise effective command and control of the overall communications response.
4. Demonstrate the ability of the JIC to coordinate public news briefings with State and Federal agencies and provide timely information to the public during periodic JIC briefings.
5. Demonstrate the ability of media relations personnel in the JIC to answer telephone calls from the media professionally and accurately.
6. Demonstrate the ability of TVA's public information staff in the JIC to provide timely and accurate information to anyone calling the public information telephone number.
7. Demonstrate the ability to provide reasonable media access with minimal impact on emergency response activities.
8. Demonstrate the ability to provide information to the public that is accurate, presented at a meaningful technical level, and take corrective actions for inaccuracies.
9. Demonstrate the adequacy of the CECC communication staffs facilities, resources, equipment, and communications system to support emergency operations.

I. The following drills will be conducted during the exercise:

1. CECC/State Communication Drill
2. TSC/CECC Communication Drill
3. Plant RADCON Drill
4. Plant Radiological Monitoring Drill (Environs Monitoring)
5. Medical Emergency Drill

BFN 1995 GRADED EXERCISE NARRATIVE SUMMARY

Rev. date:07/20/95

INITIAL CONDITIONS: U-2 at 100% on day 200 of an extended run(MOL). Moving fuel in U2 spent fuel pool. The Residual Heat Removal(RHR) 2B pump motor is out of service for repairs. Upon inspection of valve operators for 2-FCV-74-24 and 25, grease was found in the spring packs. The limitorques for these valves have been disassembled and the spring packs are removed.

At zero minutes(T=00:00) into the exercise the DC solenoid fails on FSV-1-15B. This will have an effect later on the ability of the Main Steam Isolation Valve(MSIV) on Main Steam Line "A" in going closed.

At fifteen minutes(T=00:15) into the exercise a spent fuel assembly falls and is damaged. This results in a release of radioactivity onto the refuel floor. A refuel floor zone isolation occurs when 2-RE-90-140 and 141 alarm. This causes the normal exhaust ventilation to isolate and the SBGTS to start. In addition, Area Radiation Monitors(ARMs) 2-RE-90-1, 2, and 30 and the Continuous Air Monitor(CAM) 2-RE-90-50 on the refuel floor alarms. Also two personnel are contaminated with radioactivity.

At eighteen minutes(T=00:18) into the exercise a medical emergency involving the refuel floor crane operator occurs.

At twenty minutes(T=00:20) into the exercise ARM 2-RE-90-2 stops alarming as the airbourne radioactivity begins to disperse and is removed by the SBGTS.

At thirty minutes(T=00:30) into the exercise an ALERT should be declared based on EAL 3.2-A(2-RE-90-140 alarm and confirmation from refuel floor personnel) or FA3(Damaged fuel bundle and release of radioactivity).

At forty five minutes(T=00:45) into the exercise the alarm will clear on 2-RE-90-140,141 due to removal of radioactivity by SBGTS and decay.

At fifty minutes(T=00:50) into the exercise the alarm will clear on ARMs 2-RE-90-1,30 and CAM 2-RE-90-50 after the normal ventilation is returned to service.

At one hour(T=01:00) into the exercise the Reactor Building Closed Cooling Water(RBCCW) pressure switch 2-PS-70-15 shorts which closes valve 2-FCV-70-48 isolating the nonessential RBCCW system. No low pressure annunciation occurs due to this failure. This will result in the slow heating of the spent fuel pool. Also RWCU isolates and chemistry should be asked to take reactor coolant system samples.

At two hours(T=02:00) into the exercise RPS 2B MG set fails which causes the MSIV on Main Steam Line "A" to close. Shortly, all MSIVs close due to high steam flow. The reactor gets a scram signal but a ninety percent Anticipated Transient Without Scram(ATWS) occurs due to a hydraulic lock.

At two hours and three minutes(T=02:03) into the exercise the Drywell Vacuum Relief valve 2-FCV-64-28A sticks open. This results in less scrubbing of iodines and particulates by the Torus.

At two hours and five minutes(T=02:05) into the exercise the ATWS and low water level severely stress the fuel assemblies resulting in about 20% clad failure and 1/2% fuel overtemperature. Also 2-FCV-1-55 will not open preventing the use of the Condenser for cooling down. When Torus cooling is attempted 2-FCV-74-57 will not open allowing the Torus to heat up. ARMs 2-RE-90-24,25,26,27,29 on elevation 519 alarm as radioactivity in piping and the Torus increases.

BFN 1995 GRADED EXERCISE NARRATIVE SUMMARY

Rev. date:07/20/95

At two hours and ten minutes(T=02:10) into the exercise when a second manual scram is attempted all rods drive in. A leak begins in the Drywell from the 2B Recirculation line between the discharge isolation valve 2-FCV-68-79 and the suction isolation valve 2-FCV-68-77. When an attempt is made to close Recirc Pump "2B" discharge isolation valve 2-FCV-68-79 it will not close due to an electrical problem outside the Drywell. ARMs 2-RE-90-20,21,23 on elevation 565 alarm as radioactivity in the scram discharge headers and volumes increases.

At two hours and fifteen minutes(T=02:15) into the exercise a SAE should be declared based on EAL 1.2-S(Failure of scram to bring the reactor subcritical), EAL 2.3 S1(Primary containment radiation levels \geq 2000 R/hr), or SS1(Core thermal $>$ 3% and reactor critical when shutdown required).

At two hours and twenty minutes (T=02:20) into the exercise ARM 2-RE-90-28 alarms due to increasing radioactivity in piping systems. Also when Torus venting is started then the stack monitors 0-RE-90-147,148 and WRGERMS alarm. Torus venting should be terminated when Operations determines that they have exceeded their release fraction.

At three hours(T=03:00) into the exercise the 2B Recirculation line leak worsens.

At three hours and thirty minutes(T=03:30) into the exercise the Division #1 inverter fails which causes the Torus Vacuum Relief valve 2-FCV-64-20 to open and it can not be reclosed. Also check valve 800 begins to leak which results in a failure of primary containment. Radioactivity in the U-2 reactor building increases and results in additional alarms of ARMs, and CAMs throughout U-2 reactor building and the stack.

At three hours and thirty five minutes(T=03:35) into the exercise 2-FCV-74-57 may be opened if the OSC has repaired it and 2-FCV-68-79 may be closed if the OSC has corrected its problem.

At three hours and forty five minutes(T=03:45) into the exercise a General Emergency should be declared based on EAL 2.3 G2(Primary containment radiation levels \geq 2000 R/hr and integrity cannot be maintained) or FG3(Loss of 2 of 3 fission product barriers with a potential loss of the third barrier).

At four hours (T=04:00) into the exercise Operations should Emergency Depressurize the reactor.

At four hours and thirty minutes(T=04:30) into the exercise 2-FCV-64-20 or check valve 800 may be closed if the OSC has corrected each problem.

At about five hours and thirty minutes(T=05:30) into the exercise if the release has been secured the exercise may be terminated.

BFN

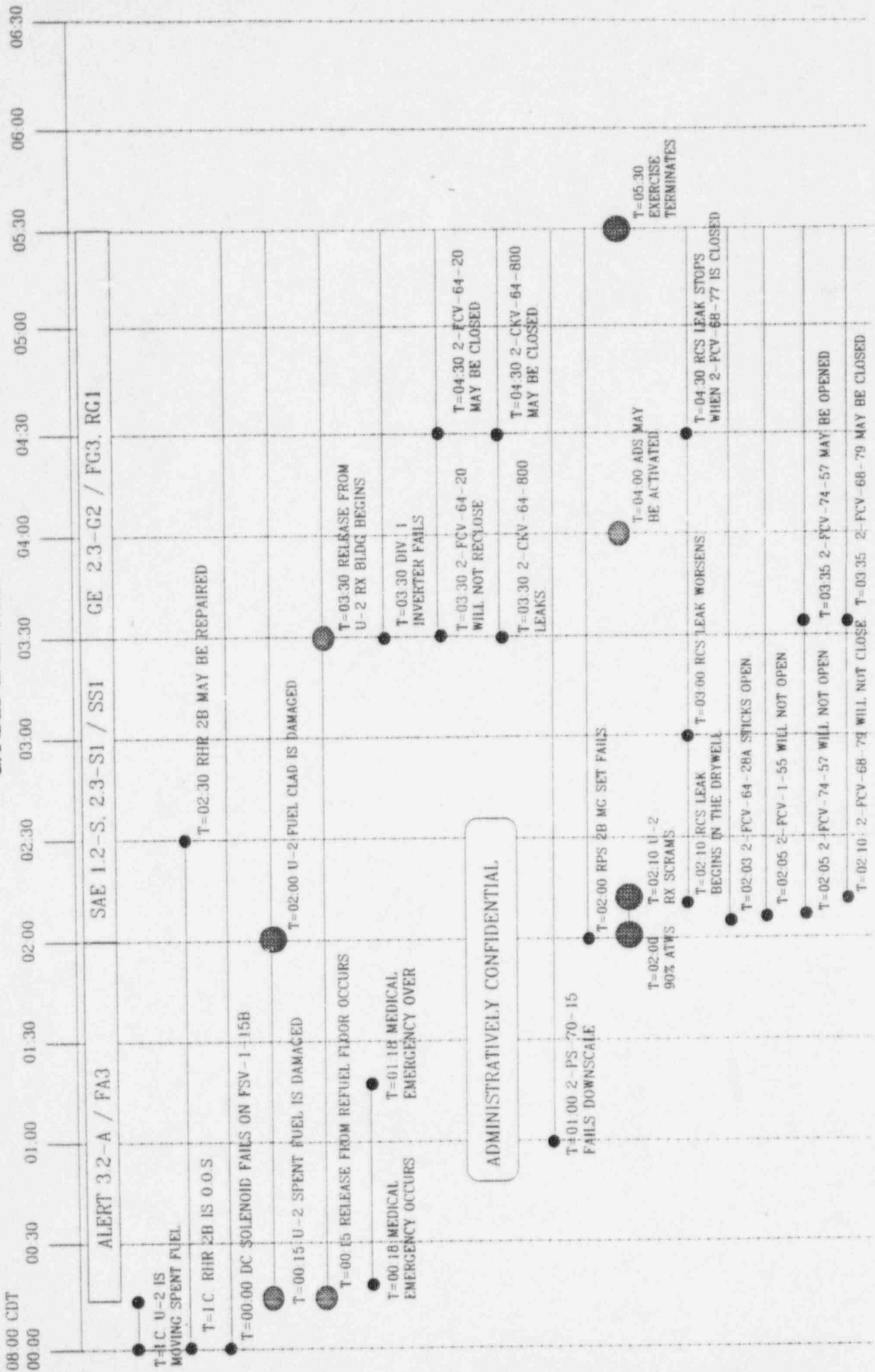
EMERGENCY PREPAREDNESS

1995

REV DATE 7-13-95

SCENARIO JAMELENE

GRADED EXERCISE



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