



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA STREET, N.W., SUITE 2900  
ATLANTA, GEORGIA 30323-0198

September 22, 1995

Report Nos.: 50-369/95-18 and 50-370/95-18

Licensee: Duke Power Company  
422 South Church Street  
Charlotte, NC 28242

Docket Nos.: 50-369 and 50-370

License Nos.: NPF-9 and NPF-17

Facility Name: McGuire Nuclear Station Units 1 and 2

Inspection Conducted: August 7-11, 1995

Inspector: W. M. Sartor, Jr. 9/21/95  
Date Signed

Accompanying Personnel: K. Clark, Region II  
B. Haagensen, Consultant  
M. Sykes, Resident Inspector

Approved by: K. P. Barr 9/22/95  
Date Signed  
K. P. Barr, Chief  
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 9:00 a.m. to 2:27 p.m. on August 8, 1995. The scope of the onsite inspection focused on the adequacy of the licensee's emergency response program, the implementation of the 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.

Enclosure

## Results:

In the areas inspected, violations or deviations were not identified. The licensee was able to demonstrate the ability to implement its Emergency Plan and procedures in response to the simulated accident. However, there were observations during the exercise that questioned the effectiveness of portions of the emergency response training program. For example, there were observations concerning dose assessment and estimates of clad damage that were inconsistent with the exercise data. Because these inconsistencies were conservative in nature, the concomitant decisions regarding protective action recommendations were also conservative. Numerous exercise control and data problems significantly affected the realism of some of the data players were given. The exercise was considered successful; however, significant improvements regarding exercise preparation and control were needed.

## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*T. Barker, Administrative Specialist, Emergency Preparedness
- \*W. Byrum, Manager, Radiation Protection
- \*M. Cloninger, Technical Specialist II, Emergency Preparedness
- \*K. Crane, Specialist, Compliance
- \*A. Cross, Specialist, Regulatory Compliance
- \*B. Dolan, Manager, Safety Assurance
- \*M. Geddie, Station Manager
- \*T. Godfrey, Specialist, Security
- \*R. Hasty, Manager, Emergency Preparedness
- \*P. Herren, Specialist, Engineering
- \*G. Johnson, Specialist, Radiation Protection
- \*T. Kuhr, Nuclear Emergency Planning Consultant
- \*M. Lineberger, Manager, Communications
- \*T. McMeekin, Vice President
- \*J. Nagel, Specialist, Security
- \*M. Nazar, Maintenance Superintendent
- \*J. Reavis, Technical Specialist I, Emergency Preparedness
- \*J. Snyder, Manager, Regulatory Compliance
- \*J. Throlter, Specialist, Engineering
- \*R. White, Manager, Training

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

#### Nuclear Regulatory Commission

- \*M. Sykes, Resident Inspector

\*Attended exit interview

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

### 2. Exercise Scenario (82302)

The scenario was reviewed in advance of the scheduled exercise date and was discussed with licensee representatives. The scenario developed for this exercise was adequate to fully exercise the onsite and offsite emergency organization of the licensee and provided sufficient emergency information to the state and local government agencies for their full participation in the exercise. While no major problems with the scenario were identified during the review, several inconsistencies became apparent during the exercise. The inconsistencies caused some confusion when exercise data no longer correlated with observed plant conditions.

Examples follow:

- The reactor was tripped early in the scenario. The scenario timeline called for the RCPs to continue in operation throughout the scenario. The operators correctly recognized that the RCPs were required to be tripped in response to a loss of nuclear component cooling which caused high RCP motor stator temperatures. This response caused an early reactor trip and eliminated the cause for the clad damage at the end of the scenario. This unanticipated trip also caused other scenario events to vary from the expected timeline and decoupled the radiological source term from the plant conditions.
- The exercise scenario called for damage to fuel cladding caused by a loose part becoming entrained in the primary coolant flow and impinging on the core. However, the earlier loss of RCPs implied that this event occurred when the RCS was in natural circulation and RCS flow would have been insufficient to move the loose part and cause clad damage.
- The exercise offsite radiological data did not consider the plant vent release path. The vent path radiological process monitor indicated that a release was occurring through the plant vent via the air ejectors but the offsite radiological data was calculated without considering this path. As a result, the players projected doses using this path as a contributor to the release. The exercise scenario offsite radiological dose data did not consider this path but the players correctly added the dose contribution from this path to the dose from the steam line break. The plant vent monitor continued to show a significant release after the plant air ejectors had been shut down.

The inspector also observed that questions asked by the controllers/evaluators during a meeting just prior to the exercise beginning indicated the level of controller/evaluator training was inadequate. All of the above observations were presented to management during the exit with the conclusion that significant improvements needed to be made in exercise preparation and control.

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 in a satisfactory manner.

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 emergency response facilities was provided for the initial accident response 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 assistant 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 EP provided information for additional support and resources that may be called upon to assist in an emergency. Representatives of the State of North Carolina were accommodated adequately in the EOF.

Prior to the initiation of the exercise, the licensee had conducted and evaluated separate fire and medical drills with offsite support agencies to demonstrate the adequacy of the arrangements for assistance.

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.



An emergency classification system was in effect as stated in Procedure RP/O/A/5700/00, "Classification of Emergency." The system was adequate for the classification of the simulated accident and the emergency procedures provided for initial and continuing mitigating actions during the simulated emergency. All events were promptly and correctly classified.

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; that the content of initial and followup messages to response organizations had been established; and that 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. The procedures were used to promptly and accurately make notification of plant and radiological conditions to the offsite authorities and the NRC in most instances. An exception was the delay in providing dose projections to the State and local authorities following the release which started at 10:30 a.m. when a steam line break occurred on a ruptured steam generator. This did not result in any wrong PARs; however, prompt information to the offsite authorities for releases below PAGs was an area for improvement.

The early warning to the populace within the plume exposure pathway EPZ was made following the SAE classification with an actual sounding of the sirens in the EPZ followed by the activation of the EBS. The sirens and EBS were simulated at the GE.

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 communications 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.

During the exercise, the licensee activated its Joint Information Center. News releases were provided by the licensee and press conferences were conducted. The personnel staffing the JIC were knowledgeable and coordinated their activities well with the State and local media personnel.

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 Shift Manager assumed the responsibilities as the EC 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 EC in the SCR provided an appropriately thorough turnover briefing to the Station Manager who then assumed EC responsibilities. TSC personnel appeared to be knowledgeable concerning their emergency responsibilities, and facility operations proceeded smoothly. TSC equipment and supplies were adequate to support the licensee's response to the simulated emergency.
- c. Operational Support Center - The OSC was promptly staffed and operated effectively throughout the exercise. The OSC Coordinator appeared to be cognizant of his duties and provided timely status reports to OSC personnel. Teams were dispatched with good pre-job briefings and provided periodic reports to the OSC Coordinator on their status.

- d. Emergency Operation Facility - Activation of the EOF was not observed by the inspection team. However, an inspector did observe the EOF during the latter portion of the exercise and did not observe any facility or equipment problems.

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. The engineering team in the TSC provided engineering assessments to the EC and his staff. The TSC engineering team was generally effective in providing an assessment of plant conditions with one exception. The exception was the TSC team incorrectly concluded that the fuel cladding boundary had failed although the boundary remained intact throughout the exercise. Observations to support this conclusion include:

- The TSC engineering team estimated clad damage to be 1.7%. The EAL level for a loss of clad barrier was 5% clad damage. The EC did not recognize that the degree of clad failure was below the EAL level that established the criteria for the loss of fuel clad boundary.
- The reactor engineer incorrectly informed the EC that clad barrier had failed during the exercise.
- At the end of the exercise, the EC repeatedly stated that he had to reestablish one of the three failed fission product barriers before he could transition to recovery.

The radiological assessments were done in both the TSC and EOF. The EOF becomes the primary facility following its activation with the TSC as back-up. The dose assessment teams did not accurately characterize the offsite dose release profile after the clad damage event. The field monitoring data clearly indicated the dose projections were too high. The team substantially overestimated the doses because they were using a non-representative source term. Observations supporting this included:

- The dose projection results that were reported to the State characterized projected offsite doses that were substantially increasing from the time that clad damage occurred, until the end of the exercise. However, many field team measurements clearly indicated that the offsite doses were actually decreasing during this time.



- The TSC dose assessment team inappropriately convinced the EOF dose assessment team to use the fuel melt default accident sequence instead of the SGTR default accident sequence. This choice caused the estimated source term to be higher than the actual source term for the known events. There was no indication that the plant had a fuel melt scenario in progress.
- The dose assessment team did not attempt to accurately characterize the release profile by adjusting their release rate to scale the projected doses to approximate field monitoring information. They stated that they were being "conservative" by overestimating the source term. The dose projections indicated that PAGs were exceeded at the site boundary while actual dose rate measurements indicated that PAGs were never exceeded at the site boundary.

The above observations were not considered as weaknesses because they did not result in inappropriate PARs being made and because there were inconsistencies in scenario data.

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 proper PARs were provided by the licensee to the State with the GE notification message.

No violations or deviations were identified.

#### 13. Radiological Exposure Control (82301)

This area was observed to determine whether means for monitored 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 monitored 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 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 August 10, 1995, with exercise controllers, licensee management, and NRC personnel attending. The licensee reviewed and adequately evaluated the performance of the emergency organization in meeting the objectives.

No violations or deviations were identified.

15. Action on Previous Inspection Finding (82301)

(Closed) VIO 50-369, 370/95-04-01: Failure to maintain EIPs current and up-to-date.

Licensee's response of March 20, 1995, was evaluated and found acceptable in the NRC letter of acknowledgement on April 13, 1995. The inspector reviewed the implementation of the corrective action and found it to be in place as described. Specifically, the Emergency Procedures Tracking Sheet developed for ensuring proper approval and distribution of an approved copy to Emergency Planning appeared to be effective. A review of selected copies of the EIPs was made and no discrepancies with out of date procedures was identified. This issue is therefore closed.

16. Exit Interview

The inspection scope and results were summarized on August 10, 1995, with those persons indicated in Paragraph 1. The inspector described the areas inspected and discussed in detail the exercise results. Proprietary information is not contained in this report. Dissenting comments were not received from the licensee.

<u>Item Number</u>	<u>Status</u>	<u>Description and Reference</u>
50-369, 370/95-04-01	Closed	VIO - Failure to maintain EPIPs current and up-to-date (Paragraph 15).

17. 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.

18. Index of Abbreviations Used in This Report

CFR	Code of Federal Regulations
EAL	Emergency Action Level
EC	Emergency Coordinator
EBS	Emergency Broadcast System
EOF	Emergency Operations Facility
EP	Emergency Plan
EPA	Environmental Protection Agency
EPIP	Emergency Plan Implementing Procedure
EPZ	Emergency Planning Zone
ERF	Emergency Response Facility
ERO	Emergency Response Organization
EWS	Early Warning System
FEMA	Federal Emergency Management Agency
GE	General Emergency
HP	Health Physics
NRC	Nuclear Regulatory Commission
OSC	Operational Support Center
PAG	Protective Action Guideline
RCP	Reactor Coolant Pump
RCS	Reactor Coolant System
SAE	Site Area Emergency
SCR	Simulator Control Room
SGTR	Steam Generator Tube Rupture
TSC	Technical Support Center

**McGUIRE NUCLEAR STATION  
1995 EMERGENCY EXERCISE  
EXERCISE OBJECTIVES**

**A. SIMULATOR CONTROL ROOM**

1. Demonstrate ability of the Operations Shift Manager to recognize conditions, classify emergencies, and assume the initial responsibilities of the Emergency Coordinator in a timely manner.
2. 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 announcements prior to TSC and OSC activation, and a precise and clear transfer of responsibilities from the Emergency Coordinator in the Control Room to the Emergency Coordinator in the Technical Support Center.
3. Demonstrate the ability of the Control Room staff to notify the State and Counties within 15 minutes after declaring an emergency or after changing the emergency classification.
4. Demonstrate the ability of the Control Room staff to alert, notify, and staff the TSC and OSC facilities after declaring an Alert or higher emergency classification.
5. Demonstrate the ability of the Control Room staff to notify the NRC not later than 1 hour after declaring one of the emergency classifications.
6. Demonstrate the assembly of station personnel within 30 minutes in a simulated emergency and provide accountability for any not present at the assembly location.
7. Test primary off-site communications equipment to the State and County Warning Points and the NRC, including Selective Signaling System and the NRC Emergency Notification System.

8. Demonstrate the ability to alert, notify and staff the EOF after declaring an Alert or higher emergency classification or after a decision by the Emergency Coordinator during an Unusual Event.
9. Demonstrate proper use of message format and authentication methodology for messages transmitted to State and Counties.
10. Test the adequacy and operability of emergency equipment and supplies.

**B. TECHNICAL SUPPORT CENTER (TSC)**

1. Demonstrate ability to perform a precise and clear transfer of responsibilities from the Control Room Emergency Coordinator to the TSC Emergency Coordinator.
2. Demonstrate the ability of the Site Emergency Coordinator to provide effective direction, command and control, to manage activities of classification, accident analysis, or mitigation and to perform periodic briefings for the TSC/OSC staff and personnel.
3. Demonstrate the ability of the TSC staff to notify the State and Counties within 15 minutes after declaring an emergency or after changing the emergency classification.
4. Demonstrate proper use of message format and authentication methodology for messages transmitted to State and Counties.
5. Test communications equipment among on-site emergency facilities including plant extensions, intercoms, and on-site radio system.
6. Test primary off-site communications equipment to the State and County Warning Points and the NRC, including Selective Signaling System and the NRC Emergency Notification System.
7. Test the adequacy and operability of emergency equipment and supplies.
8. Demonstrate ability to perform a precise and clear transfer of responsibilities from the TSC Emergency Coordinator to the EOF Director.



9. Demonstrate the ability to transmit data using the Emergency Data Transmittal System in accordance with station procedures, and to distribute this data throughout the EOF according to Emergency Plan Implementing Procedures (EPIP).
10. Demonstrate the ability to provide data to the TSC and OSC in accordance with procedures.
11. Demonstrate ability to perform a precise and clear transfer of responsibilities from the Emergency Coordinator to the EOF Director.
12. Demonstrate adequate communications between the off-site monitoring teams and the TSC/EOF.
13. Demonstrate the ability to develop off-site dose projections in accordance with procedures.
14. Demonstrate the ability to continuously monitor and control emergency worker exposure.
15. Demonstrate the ability to determine on-site radiation levels and airborne radioiodine concentrations.
16. Demonstrate the ability to assess the incident and provide mitigation strategies.

C. OPERATIONS SUPPORT CENTER (OSC)

1. Demonstrate the ability to continuously monitor and control emergency worker exposure.
2. Demonstrate the ability to determine on-site radiation levels and airborne radioiodine concentrations.

D. EMERGENCY OPERATIONS FACILITY (EOF)

1. Demonstrate the ability of the EOF Director to provide effective direction, command and control, to manage activities of classification, accident analysis, or mitigation and to perform periodic briefings for the EOF staff and personnel.

2. Demonstrate the ability of the Emergency Operations Facility Room staff to notify the State and Counties within 15 minutes after declaring an emergency or after changing the emergency classification.
3. Demonstrate proper use of message format and authentication methodology for messages transmitted to State and Counties.
4. Test primary off-site communications equipment to the State and County Warning Points and the NRC, including Selective Signaling System and the NRC Emergency Notification System.
5. Test the adequacy and operability of emergency equipment and supplies.
6. Demonstrate ability to perform a precise and clear transfer of responsibilities from the Emergency Coordinator to the EOF Director.
7. Demonstrate adequate communications between the off-site monitoring teams and the TSC/EOF.
8. Demonstrate the ability to develop off-site dose projections in accordance with procedures.
9. Demonstrate the ability to collect soil, water and vegetation samples in accordance with procedures.
10. Demonstrate the ability to assess the incident and provide mitigation strategies.

E. MEDICAL EMERGENCY RESPONSE TEAM (MERT)

1. The MERT demonstrates the ability to arrive on the emergency scene in a timely manner, assess medical injuries, identify hazards, and provide medical care.
2. The priority of medical and radiological concerns are properly established and contamination control measures are implemented for personnel and equipment during the treatment, transport, and following transport of contaminated or potentially contaminated injured personnel.

3. Carolina's Medical Center demonstrate their ability to receive the injured person, assess radiological and medical conditions of the victim, and implement proper contamination control measures.

F. FIRE BRIGADE

1. A Fire Brigade Leader is promptly dispatched to the scene of the emergency where he/she demonstrates the ability to establish a command post, setup communications with the Control Room and effectively interact with the Offsite Agency Incident Commander.
2. Demonstrate the ability to request and obtain fire fighting support form the off-site department.

G. SCENARIO COMMITTEE

1. Demonstrate the ability to control the scenario and provide accurate data for player use.

H. PUBLIC INFORMATION (NEWS GROUP)

1. Demonstrate the ability to provide accurate information to the news media in a timely manner and to provide effective rumor control according to the Emergency Plan Implementing Procedures.
2. Demonstrate the ability to coordinate information with state and county public information officers prior to its release.

I. ALL

1. Demonstrate resolution of previous exercise findings (weaknesses/deficiencies).

McGUIRE NUCLEAR STATION  
ANNUAL EXERCISE SCENARIO  
AUGUST 8, 1995  
NARRATIVE SUMMARY

This exercise will be a full station drill with the Simulator Control Room, Technical Support Center (TSC), Operations Support Center (OSC), and the Emergency Operations Facility (EOF) manned with players, controllers and evaluators. The Media Center and the Joint Information Center (JIC) will be manned because the State of North Carolina and Counties of Gaston, Mecklenburg, Lincoln, Cabarrus, Catawba and Iredell are playing in this exercise.

The exercise begins with the initial conditions of "1B" Diesel Generator out of service, "1B" KD Pump (Diesel Generator Cooling Water) out of service, and "D" VI Compressor (Instrument Air) out of service.

The State and Counties have dictated when they need each classification to occur, thus the following plant casualties are used to accomplish their needs:

An Alert is declared when Unit "1D" Steam Generator develops a tube leak in excess of 50 gpm. (Having this defect in "D" Steam Generator makes the offsite release possible later in the scenario).

A Site Area Emergency is declared when a Secondary Steam Line from "1D" Steam Generator breaks due to a weld failure causing the Reactor to be manually tripped and a manual Safety Injection. During the Safety Injection "1A" NI (Safety Injection) ECCS (Emergency Core Cooling System) Pump starts and trips.

Actual (10 mile EPZ) sirens will be sounded and the EBS activated. The release to atmosphere is from the primary system to the secondary system through the "1D" Steam Generator and the unisolable line break in "D" Main Steam line.

A General Emergency will be declared as a result of loss of two fuel barriers with the potential loss of the third (the Steam Generator tube leak increasing in size to greater than 200 gpm and the presence of a loose part flowing into the reactor causing fuel clad failure). Sirens and EBS will be simulated at General Emergency.

The annual Fire drill will be conducted on August 7 and not as part of the annual exercise and the Medical drill will be conducted on August 8 prior to and not as part of the annual exercise.

McGuire Nuclear Station  
Annual Exercise  
August 8, 1995

0900	EXERCISE BEGINS
0901	1D S/G TUBE LEAK >50 GPM
0910	DECLARE ALERT
0912	ACTIVATE ERO
0915	CONDUCT SITE ASSEMBLY
0920	1 ETA BLACKOUT
0925	1A DIESEL TRIP
0945	"A" FEEDWATER HTR FLUCTUATION
1000	KC SUPPLY LEAK
1015	1ETA RETURN TO SERVICE
1030	SECONDARY LINE BREAK
1033	DECLARE SITE AREA EMERGENCY
1040	REACTOR TRIP
1042	SAFETY INJECTION
1100	"A" NI PUMP TRIP
1115	"E" VI COMPRESSOR TRIP
1230	TUBE LEAK INCREASE/CLAD FAILURE
1233	DECLARE GENERAL EMERGENCY
1500	TERMINATION OF EXERCISE



# DRILL

CONFIDENTIAL  
(until after  
exercise is  
conducted)

McGUIRE NUCLEAR STATION  
ANNUAL EXERCISE  
AUGUST 8, 1995

0900 "1D" S/G Tube Leak >50 gpm

## EXPECTED RESPONSE

Enter AP/1/A/5500/10 Case 1 "NC System Leak Within the Capacity of Both NV Pumps"  
Enter OP/1/A/5500/04 "Rapid Downpower" (this procedure may be entered depending on SRO shutdown path)  
Enter OP/1/A/6100/03 "Controlling Procedure for Unit Operation"  
Enter OP/1/A/6100/02 "Controlling Procedure for Unit Shutdown"  
Declare ALERT RP/0/A/5700/00 "Classification of Emergency" 4.1.1 Case 1  
Enter RP/0/A.5700/02 "Alert"  
Enter RP/0/A/5700/10 "NRC Immediate Notification Requirements"  
Enter RP/0/A/5700/11 "Conduct a Site Assembly"  
Activate TSC/OSC/EOF  
Enter OP/1/A/6300/01 "Turbine Generator Operation"

0920 1ETA Blackout (will get back in approx. 30 min.)(relay 27A burned out)

## EXPECTED RESPONSE

Enter AP/1/A/5500/07 Case 2 "Loss of Electrical Power"  
Enter OP/1/A/6250/02 "Auxiliary Feedwater System"

0925 "1A" Diesel Generator trips on Low Lube Oil Pressure (Oil supply line break)

0945 "A" Feedwater Heater level fluctuating (due to pin hole in umbilical tubing (may need an additional failure)

1000 Leak develops on KC Supply to NB Evaporator(in room 618-1/4 gpm)

1015 1ETA returned to service

THIS IS AN EXERCISE. THESE EVENTS HAVE NOT TAKEN PLACE. THESE EVENTS ARE BEING SIMULATED FOR EXERCISE PURPOSES ONLY.

# DRILL

McGUIRE NUCLEAR STATION  
ANNUAL EXERCISE  
AUGUST 8, 1995

1030 Secondary Steam Line break on line from "1D" S/G due to weld failure (750,000 lbs/hr) into ext. doghouse

EXPECTED RESPONSE

Declare SITE AREA EMERGENCY RP/0/A/5700/00 4.1.1 Case 2  
Enter AP/1/A/5500/01 "Steam Leak"  
Enter RP/0/A/5700/03 "Site Area Emergency"  
Enter EP/1/A/5000/G.1 "Generic Enclosures"  
Enter EP/1/A/5000/E-0 "Reactor Trip or Safety Injection"  
Enter EP/1/A/5000/F-0 "Critical Safety Function Status Tree"  
Enter EP/1/A/5000/E-2 "Faulted Steam Generator Isolation"  
Enter EP/1/A/5000/E-3 "Steam Generator Tube Rupture"  
Enter EP/1/A/5000/ECA-3.1 "SGTR With Loss of Reactor Coolant-Subcooled Recovery Desired"  
Enter EP/1/A/5000/ES-0.1 "Reactor Trip Response"

1040 Reactor Trip (manual)

1042 Safety Injection (manual)

1100 During the SI, "A" NI ECCS Pump starts and trips on overcurrent (possible wires shorted in junction box)

1115 "E" VI Compressor trips on high oil temperature (water side cooler leak)

1230 Increase size of tube leak to >200 gpm (Loose part causes fuel clad failure)

EXPECTED RESPONSE

Enter RP/0/A/5700/00 "Classification of Emergency"  
Declare GENERAL EMERGENCY RP/0/A/5700/04 "Classification of Emergency" 4.1.2 Case 1 B and C with potential for A.  
Enter AP/1/A/5500/18 "High Activity in Reactor Coolant"  
Enter OP/1/A/6550/17 "Estimate of Failed Fuel Based on Iodine-131 Concentration"  
Enter OP/1/A/6200/04 "Residual Heat Removal System"

THIS IS AN EXERCISE. THESE EVENTS HAVE NOT TAKEN PLACE. THESE EVENTS ARE BEING SIMULATED FOR EXERCISE PURPOSES ONLY.

# DRILL

1430 - Establish Recovery organization and enter RECOVERY  
1500 Termination of Exercise

*THIS IS AN EXERCISE. THESE EVENTS HAVE NOT TAKEN PLACE. THESE  
EVENTS ARE BEING SIMULATED FOR EXERCISE PURPOSES ONLY.*