



Final Exercise Report

Catawba Nuclear Station

Licensee: **Duke Power Company**

Exercise Date: **March 26, 2002**

Report Date: **June 19, 2002**

FEDERAL EMERGENCY MANAGEMENT AGENCY
REGION IV
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I. EXECUTIVE SUMMARY

On March 26, 2002, the Federal Emergency Management Agency (FEMA), Region IV, conducted a partial participation exercise in the plume exposure pathway emergency planning zone (EPZ) around the Catawba Nuclear Station. The purpose of the exercise was to assess the level of State and local preparedness during their response to a radiological emergency. This exercise was held in accordance with FEMA's policies and guidance for offsite preparedness exercises in order to reach a determination of reasonable assurance for the State and county governments to protect the health and safety of the public.

The previous exercise at this site was a **full** participation, plume exposure pathway, exercise conducted on July 25, 2000. The qualifying emergency preparedness exercise was conducted on February 15-16, 1984.

FEMA wishes to acknowledge the efforts of the many individuals in the States of South Carolina and **North** Carolina and the Risk Counties of York in South Carolina and Gaston and Mecklenberg in North Carolina; and the Support Counties of Cherokee, Chester, Lancaster and Union in South Carolina and Cleveland and Union in North Carolina who planned, prepared **for**, and participated **in** this exercise. Protecting the public health and safety **is** the full-time **job** of **some** of the exercise participants and **an** additional assigned responsibility for others. Still others have willingly sought this responsibility by volunteering to provide vital emergency services to their communities. Cooperation and teamwork of all the participants were evident during this exercise.

This report contains the evaluation of the biennial exercise and the following out-of-sequence activities: Protective actions for schools, traffic control points, temporary care **of** evacuees center and emergency worker decontamination.

The State and local organizations, except where noted in this report, demonstrated knowledge of their emergency response plans and **procedures** and implemented them. No Deficiencies and **only** one Area Requiring Corrective Action (ARCA) were identified during this exercise. The ARCA concerned **North** Carolina's failure to communicate the decision for emergency workers to ingest KI to the affected counties.

II. INTRODUCTION

On December 7, 1979, the President directed FEMA to assume the lead responsibility for all offsite nuclear planning and response. FEMA's activities are conducted pursuant to Title 44 Code of Federal Regulations (CFR) Parts 350, 351 and 352. These regulations are a key element in the Radiological Emergency Preparedness (REP) Program that was established following the Three Mile Island Nuclear Station accident in March 1979.

FEMA Title 44 CFR 350 establishes the policies and procedures for FEMA's initial and continued approval of State and local governments' radiological emergency planning and preparedness for commercial nuclear power plants. This approval is contingent, in part, on State and local government participation in joint exercises with licensees.

FEMA's responsibilities in radiological emergency planning for fixed nuclear facilities include the following:

- Taking the lead in offsite emergency planning and in the review and evaluation of RERPs and procedures developed by State and local governments;
- Determining whether such plans and procedures can be implemented on the basis of observation and evaluation of exercises of the plans and procedures conducted by State and local governments;
- Responding to requests by the U.S. Nuclear Regulatory Commission (NRC) pursuant to the Memorandum of Understanding between the NRC and FEMA dated June 17, 1993 (Federal Register, Vol. 58, No. 176, September 14, 1993); and
- Coordinating the activities of Federal agencies with responsibilities in the radiological emergency planning process:
 - Department of Commerce,
 - Nuclear Regulatory Commission,
 - Environmental Protection Agency,
 - Department of Energy,
 - Department of Health and Human Services,
 - Department of Transportation,
 - Department of Agriculture,
 - Department of the Interior, and
 - Food and Drug Administration.

Representatives of these agencies serve on the FEMA Region IV Regional Assistance Committee (RAC) which is chaired by FEMA.

Formal submission of the RERPs for the Catawba Nuclear Station to FEMA Region IV by the State of South Carolina and involved local jurisdictions occurred on August 31,

1984, and by the State of North Carolina and involved local jurisdictions on September 5, 1984. Formal approval of the South Carolina and North Carolina RERPs was granted by FEMA on October 8, 1985, under 44 CFR 350.

A REP exercise was conducted on March 26, 2002 by FEMA Region IV to assess the capabilities of State and local emergency preparedness organizations in implementing their RERPs and procedures to protect the public health and safety during a radiological emergency involving the Catawba Nuclear Station. The purpose of this exercise report is to present the exercise results and findings on the performance of the offsite response organizations (ORO) during a simulated radiological emergency.

The findings presented in this report are based on the evaluations of the Federal evaluator team, with final determinations made by the Chief Evaluator, the FEMA Region IV RAC Chairperson and approved by the Regional Director.

The criteria utilized in the FEMA evaluation process are contained in:

- NUREG-0654/FEMA-REP-1, Rev. I, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980;
- Radiological Emergency Preparedness: Exercise Evaluation Methodology, September 12, 2002.

Section III of this report, entitled "Exercise Overview," presents basic information and data relevant to the exercise. This section of the report contains a description of the plume pathway EPZ, a listing of participating jurisdictions and functional entities which were evaluated, and a tabular presentation of the time of actual occurrence of key exercise events and activities.

Section IV of this report, entitled "Exercise Evaluation and Results," presents detailed information on the demonstration of applicable exercise Criteria at each jurisdiction or functional entity evaluated in a jurisdiction-based, issues-only format. This section also contains descriptions of all ARCAs assessed during this exercise and recommended corrective actions.

III. EXERCISE OVERVIEW

Contained in this section are data and basic information relevant to the March 26, 2002 exercise to test the offsite emergency response capabilities in the area surrounding the Catawba Nuclear Station.

A. Plume Emergency Planning Zone Description

The Catawba Nuclear Station is located on the western shore of Lake Wylie, approximately six miles north of the City of Rock Hill in York County, South Carolina. The Station consists of two Westinghouse Corporation pressurized water reactors. The facility ownership is shared by Duke Power Company, North Carolina Electric Membership Corporation, Saluda River Electric Cooperative, Inc., South Carolina, North Carolina Municipal Power Agency No. 1, and Piedmont Municipal Power Agency. Duke Power Company operates and manages the facility.

Within the 10-mile EPZ there are eleven Emergency Response Planning Areas within South Carolina and four within North Carolina. Major population centers are: Rock Hill, Fort Mill, Tega Cay, the eastern edge of York County in South Carolina and Mecklenberg and Gaston Counties in North Carolina. The population for the 10-mile EPZ is 119,145.

B. Exercise Participants

The following agencies, organizations, and units of government participated in the Catawba Nuclear Station exercise March 26, 2002.

STATE OF SOUTH CAROLINA

Office of the Adjutant General, Emergency Management Division
Department of Public Safety, Highway Patrol, and Bureau of Public Safety
Department of Natural Resources, Law Enforcement
Department of Health & Environmental Control
Bureau of Land Waste Management and Health Services
Department of Social Services
Department of Mental Health
State Law Enforcement Division

RISK JURISDICTIONS

York County

SUPPORT JURISDICTIONS

Cherokee County
Chester County

Lancaster County
Union County

PRIVATENOLUNTEER ORGANIZATIONS

American Red Cross
The Salvation Army
Radio Amateur Civil Emergency Service

STATE OF NORTH CAROLINA

Governor's Office	Department of Environment, Health and Natural Resources
Department of Crime Control and Public Safety	Division of Radiation Protection
Division of Emergency Management	Division of Water Resources
Highway Patrol	Division of Environmental Management
National Guard	Division of Environmental Health
Department of Human Resources	Department of Administration
Division of Social Services	Department of Transportation
Emergency Medical Services	Department of Agriculture
Division of Facility Services	
(Office of Emergency Medical Services)	

RISK JURISDICTIONS

Gaston County
Mecklenberg County

SUPPORT JURISDICTIONS

Cleveland County
Union County

PRIVATENOLUNTEER ORGANIZATIONS

American Red Cross
Amateur Radio Services

C. Exercise Timeline

Table 1, on the following page, presents the time at which key events and activities occurred during the Catawba Nuclear Station exercise on March 26, 2002. Also included are times notifications were made to the participating jurisdictions/functional entities.

Table 1. Exercise Timeline

QATEAND SITE: March 26,2002 - Catawba Nuclear Station

Emergency Classification Level or Event	Time Utility Declared	Time That Notification Was Received or Action Was Taken					
		SC-SEOC	JIC	YORK	NC-SEOC	GASTON	MECKLENBERG
Unusual Event							
Alert	0805	0812	0855	0812	0812	0820	0828
Site Area Emergency	1043	1051	1058	1052	1053	1057	1051
General Emergency	1053	1108	1104	1105	1109	1110	1119
Simulated Rad. Release Started	0930	1019	-	1017	1007		0930
Simulated Rad. Release Terminated	End Ex	-	-	-	-	-	-
Facility Declared Operational		0820	0855	0833	0900	0822	0835
Declaration of State of Emergency		0845	0859	0900 (S)	1053	1105 (local)	-
Exercise Terminated 1230		1235	1240	1235	1225	1230	1245
Early Precautionary Actions: Evacuate: Schools (Decision/Action) Parks Lake Activate UNCC				0945/1100		1105	0840/0925 0920 0931 0950
1 st Protective Action Decision: Evac: A0, A1, A2, A3, B1, B2, C1, C2 Shelter all remaining zones		1126		1126	1126	1126	1126
1st Siren Activation		1135		1135	1135	1135	1135
1st EAS Message:		1138	1138	1138	1138	1138	1138
KI Decision for Emergency Workers: Distribute Ingestion				1135 1210	1105		

IV. EXERCISE; EVALUATION AND RESULTS

Contained in this section are the results and findings of the evaluation of all jurisdictions and functional entities, which participated in the March 26, 2002, exercise to test the offsite emergency response capabilities of State and local governments in the 10-mile EPZ surrounding the Catawba Nuclear Station.

Each jurisdiction and functional entity was evaluated on the basis of its demonstration of criteria delineated in the exercise evaluation areas published in the Federal Register, September 12, 2001. Detailed information on the exercise Criteria and the extent-of-play agreement used in this exercise are found in Appendix 3 of this report.

A. Summary Results of Exercise Evaluation - Table 2

The matrix presented in Table 2, on the following page(s), presents the status of all exercise Criteria from the exercise evaluation areas which were scheduled for demonstration during this exercise by all participating jurisdictions and functional entities. Exercise Criteria are listed by number and the demonstration status of those Criteria is indicated by the use of the following letters:

- M - Met (No Deficiency or ARCAs assessed and no unresolved ARCAs from prior exercises)
- D - Deficiency assessed
- A - ARCA(s) assessed or unresolved ARCA(s) from prior exercise(s)
- N - Not Demonstrated (Reason explained in Subsection B)

Table 2 Summary of Results of Exercise Evaluation

DATE AND SITE March 26,2002 – Catawba Nuclear Station

ELEMENT/Sub-Element	SC	SC DHEC	York	Lancaster	Chester	Cherokee	Union	NC	NC DRP	Gaston	Mecklenberg	Cleveland	Unan
1. EMERGENCY OPERATIONS MANAGEMENT													
1.a.1. Mobilization	M	M	M					M	M	M	M		M
1.b.1. Facilities	M	M	M					M	M	M	M		M
1.c.1. Direction and Control	M	M	M					A	M	M	M		M
1.d.1. Communications Equipment	M	M	M	M	M	M	M	M	M	M	M	M	M
1.e.1. Equipment & Supplies to Support Operations	M	M	M					M	M	M	M		
2. PROTECTIVE ACTION DECISION MAKING													
2.a.1. Emergency Worker Exposure Control	M	M						M	M	M	M		M
2.b.1. Radiological Assessment & PARs & PADs Based on Available Information		M	M					M	M	M	M		
2.b.2. PADs for the General Public	M	M						M	M	M	M		
2.c.1. Protective Action Decisions for Special Populations	M									M	M		
2.d.1. Radiological Assessment & Decision Making for Ingestion Exposure													
2.e.1. Rad Assessment & Decision Making for Relocation, Re-entry & Return													
3. PROTECTIVE ACTION IMPLEMENTATION													
3.a.1. Implementation of Emergency Worker Control	M		M	M	M	M	M			M	M	M	M
3.b.1. Implementation of KI Decisions	M		M							M	M		
3.c.1. Implementation of PADs for Special Populations			M							M	M		
3.c.2. Implementation of PADs for Schools			M							M	M		
3.d.1. Implementation of Traffic and Access Control	M		M							M	M	M	M
3.d.2. Impediments to Evacuation and Traffic and Access Control	M		M							M	M	M	M
3.e.1. Implementation of Ingestion Decisions Using Adequate Information													
3.e.2. Implementation of IP Decisions Showing Strategies and Instructional Materials													
3.f.1. Implementation of Relocation, Re-entry and Return Decisions													
4. FIELD MEASUREMENT and ANALYSIS													
4.a.1. Plume Phase Field Measurement & Analysis Equipment													
4.a.2. Plume Phase Field Measurement & Analysis Management									M				
4.a.3. Plume Phase Field Measurements & Analysis Procedures													
4.b.1. Post Plume Field Measurement & Analysis													
4.b.2. Laboratory Operations													
5. EMERGENCY NOTIFICATION & PUBLIC INFORMATION													
5.a.1. Activation of Prompt Alert and Notification	M		M					M		M	M		
5.a.2. Activation of Prompt Alert and Notification 15 Minute (Fast Breaker)													
5.a.3. Activation of Prompt Alert and Notification Backup Alert and Notification			M					M		M	M		
5.b.1. Emergency Information and Instructions for the Public and the Media	M												
6. SUPPORT OPERATIONS/FACILITIES													
6.a.1. Monitoring and Decon of Evacuees and EWs and Registration of Evacuees				M	M	M	M			M		M	M
6.b.1. Monitoring and Decontamination of Emergency Worker Equipment			M							M	M		
6.c.1. Temporary Care of Evacuees				M	M	M	M			M		M	M
6.d.1. Transportation and Treatment of Contaminated Injured Individuals													

LEGEND: M = Met A = ARCA D = Deficiency C = Credit

B. Status of Jurisdictions Evaluated

This subsection provides information on the evaluation of each participating jurisdiction and functional entity, in a jurisdiction based, issues only format. Presented below is a definition of the terms used in this subsection relative to objective demonstration status.

- **Met** - Listing of the demonstrated exercise Criteria under which no Deficiencies or ARCAs were assessed during this exercise and under which no ARCAs assessed during prior exercises remain unresolved.
- **Deficiency** - Listing of the demonstrated exercise Criteria under which one or more Deficiencies was assessed during this exercise. Included is a description of each Deficiency and recommended corrective actions.
- **Area Requiring Corrective Actions** - Listing of the demonstrated exercise Criteria under which one or more ARCAs were assessed during the current exercise or ARCAs assessed during prior exercises remain unresolved. Included is a description of the ARCAs assessed during this exercise and the recommended corrective action to be demonstrated before or during the next biennial exercise.
- **Not Demonstrated** - Listing of the exercise Criteria which were not demonstrated as scheduled during this exercise and the reason they were not demonstrated.
- **Prior ARCAs - Resolved** - Descriptions of ARCAs assessed during previous exercises which were resolved in this exercise and the corrective actions demonstrated.
- **Prior ARCAs - Unresolved** - Descriptions of ARCAs assessed during prior exercises which were not resolved in this exercise. Included is the reason the ARCA remains unresolved and recommended corrective actions to be demonstrated before or during the next biennial exercise.

The following are definitions of the two types of exercise issues which are discussed in this report.

- **A Deficiency** is defined in **FEMA-REP-14** as "...an observed or identified inadequacy of organizational performance in an exercise that could cause a finding that offsite emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken in the event of a radiological emergency to protect the health and safety of the public living in the vicinity of a nuclear power plant."
- An **ARCA** is defined in **FEMA-REP-14** as "...an observed or identified inadequacy of organizational performance in an exercise that is not considered, by itself, to adversely impact public health and safety."

FEMA has developed a standardized system for numbering exercise issues (Deficiencies and ARCA's). This system is used to achieve consistency in numbering exercise issues among FEMA Regions and site-specific exercise reports within each Region. It is also used to expedite tracking of exercise issues on a nationwide basis.

The identifying number for Deficiencies and ARCA's includes the following elements, with each element separated by a hyphen (-).

- **Plant Site Identifier** – A two-digit number corresponding to the Utility Billable Plant Site Codes.
- **Exercise Year** – The last two digits of the year the exercise was conducted.
- **Objective Number** – A two-digit number corresponding to the objective numbers in FEMA-REP-14.
- **Issue Classification Identifier** – (D = Deficiency, A = ARCA). Only Deficiencies and ARCA's are included in exercise reports.
- **Exercise Issue Identification Number** – A separate two (or three) digit indexing number assigned to each issue identified in the exercise.

1. STATE OF SOUTH CAROLINA

1.1 State Emergency Operations Center

Members of the Emergency Management Division, the Department of Health and Environmental Control, Bureau of Land and Waste Management, the Department of Social Services, and other selected State employees participated in the exercise. The staff was professional and knowledgeable of the South Carolina Operational Radiological Emergency Response Plan (SCOREP) and their responsibilities. The staff displayed initiative and reacted positively to their chain of command. Direction and control was maintained throughout the exercise. The leadership and staff used the information display systems, operations information software systems and meetings to share information and coordinate actions. Coordination was excellent within the EQC and with other participating organizations, including York County. The decisionmaking process focused on the needs and safety of the public and property. Protective active decisions were well coordinated and disseminated in a timely fashion.

- a. MET:** Criteria 1.a.1, 1.b.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2, 2.c.1 and 5.a.1.
- b. DEFICIENCY:** NONE
- c. AREAS REQUIRING CORRECTIVE ACTION:** NONE
- d. NOT DEMONSTRATED:** NONE
- e. PRIOR ARCAs - RESOLVED:** NONE
- f. PRIOR ARCAs - UNRESOLVED:** NONE

1.2 SEOC - Radiation Liaison

The Department of Health and Environmental Control (DHEC) Radiological Liaison at the SEOC provided technical assistance to the Director of the SC Emergency Preparedness Division in evaluating and assessing the radiological consequences of the simulated accident at the Catawba Nuclear Station in order to make protective action recommendations (PARs). The DHEC SEOC Radiation Liaison was notified by the SEOC Warning Point to mobilize and staff personnel for the Alert at Catawba Nuclear Station. The DHEC SEOC Liaison maintained contact with technical liaison personnel to obtain dose assessment, meteorological, and field monitoring information to support development of the PARs. The DHEC SEOC Liaison and supporting staff were efficient and conscientious in executing their responsibilities.

- a. MET:** Criteria 1.a.1, 1.d.1, 1.e.1, 2.a.1, 2.b.1 and 2.b.2.
- b. DEFICIENCY:** NONE

- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ARCAs - RESOLVED: NONE**
- f. **PRIOR ARCAs - UNRESOLVED: NONE**

1.3 Dose Assessment

The dose assessment and field team staff were pre-positioned at the North Carolina Air National Guard Armory in Charlotte, NC. The space they were to occupy in the armory was unavailable, so they conducted their activities in their small mobile trailer. Co-location with the State of North Carolina provided significant opportunities for information sharing and mutual aid. The Field Emergency Operations Center Coordinator successfully demonstrated the ability to direct and control emergency operations. The capability to calculate dose projections using the RASCAL model was demonstrated. The dose calculations identified the locations where the protective action guides were exceeded. This information was promptly faxed to the Emergency Response Coordinator in the SEOC. The capability to implement the taking of potassium iodide by the field team emergency workers was demonstrated.

- a. **MET Criteria 1.b.1, 1.c.1, 1.e.1, 2.a.1, 2.b.1, 2.b.2, 2.c.1 and 3.b.1**
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ARCAs - RESOLVED: NONE**
- f. **PRIOR ARCAs - UNRESOLVED: NONE**

1.4 Emergency Operations Facility

The Catawba Emergency Operations Facility (EOF), located in the utility operator's general offices in Charlotte, is fully equipped with all of the necessary amenities, and serves as an excellent facility from which all participating response organizations can effectively manage ongoing emergency operations.

Communications, coordination and the flow of technical information between and among the State officials deployed to the EOF, and with the utility operator, were exemplary. Accurate technical information was readily available from the utility operator, and provided to both State Emergency Operations Centers, located in Columbia, South Carolina and Raleigh, North Carolina, respectively, in a timely fashion.

All of the State officials deployed to the EOF were well trained, knowledgeable, followed applicable procedures, and performed their respective responsibilities in an efficient and professional manner.

- a. MET: Criteria 1.b.1, 1.d.1 and 1.e.1
- b. DEFICIENCY NONE
- c. AREAS REQUIRING CORRECTIVE ACTION: NONE
- d. NOT DEMONSTRATED: NONE
- e. PRIOR ARCAs - RESOLVED NONE
- f. PRIOR ARCAs - UNRESOLVED: NONE

1.5 Joint Information Center

Duke Energy managed the Joint Information Center (JIC) and the EOF News Manager managed media relations. The States of North and South Carolina, York Co., SC, Gaston and Mecklenburg Counties, NC and the utility were represented in the JIC. Representatives from the states and counties received information from their EOCs and the utility and provided briefings to members of the media. North and South Carolina had three people staffing the citizen information phones, including one who also spoke fluent Spanish. A rumor trend was identified and researched and reported as inaccurate. All staff participated in an enthusiastic and professional manner.

- a. MET: Criteria 1.b.1, 1.d.1, 1.e.1 and 5.b.1.
- b. DEFICIENCY NONE
- c. AREAS REQUIRING CORRECTIVE ACTION NONE
- d. NOT DEMONSTRATED: NONE
- e. PRIOR ARCAs - RESOLVED: NONE
- f. PRIOR ARCAs - UNRESOLVED: NONE

1.6 LP-1 Radio Station WFBC

Activation of the Emergency Alert System (EAS) was directed by the SEOC. The SEOC and WFBC-FM Radio Station communicated by telephone to confirm authentication codes, verify receipt of faxed copies of the test message, content of the message, and time the message was to be broadcast. Broadcast of the test EAS message actually occurred at 1142. WFBC is staffed 24 hours a day, seven days a week. The Station's Director of

Engineering and the Mid Day Show Announcer were knowledgeable of the operations of EAS. All message traffic was processed without delay.

- a. MET: Criteria 1.d.1 and 5.a.1.
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ARCAs - RESOLVED: NONE**
- f. **PRIOR ARCAs - UNRESOLVED: NONE**

2. RISK JURISDICTION

2.1 YORK COUNTY

2.1.1 Emergency Operations Center

The York County EOC Director and staff continue to provide excellent support to the residents of York County and the Catawba Nuclear Station. Direction and Control, use of Event Tracker 2000 and Dialogic Communications, and the participation of RACES are noteworthy. The knowledge and enthusiasm of the EOC staff and participation of the County Manager and Assistant County Manager are reflective of the County's commitment to public safety and are commendable. During this 4-hour exercise the EOC staff was able to function in the present location, however they were spread out in many different rooms and in the main hallway of the lower level of the facility. A larger EOC, located outside the 10-mile emergency planning zone, would greatly enhance coordination and emergency operations,

- a. MET: Criteria 1.a.1, 1.b.1, 1.c.1, 1.d.1, 1.e.1, 2.b.1, 3.a.1, 3.b.1, 3.c.1, 5.a.1 and 5.a.3.
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ARCAs - RESOLVED: NONE**
- f. **PRIOR ARCAs - UNRESOLVED: NONE**

2.1.2 Emergency Worker Decontamination

The Bethany Santiago Fire Department personnel successfully demonstrated monitoring, and decontamination of emergency workers and vehicles. They described the operation of their assigned monitoring equipment and personal dosimetry, and were knowledgeable of the monitoring action level and their individual turn-back value. Through personal performance, walk-through, and interviews, personnel demonstrated their ability to accomplish assigned tasks. This demonstration reflected the fact that the York County Office of Emergency Management and the Bethany Santiago Fire Department have invested considerable effort in training and preparing its personnel to protect the health and safety of the public in the event of an incident at the Catawba Nuclear Station.

- a. **MET** Criteria 3.a.1 and 6.b.1.
- b. **DEFICIENCY** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED** NONE
- e. **PRIOR ARCAs - RESOLVED:** NONE
- f. **PRIOR ARCAs - UNRESOLVED:** NONE

2.1.3 Protective Action for Schools

On March 27, 2002, thirteen of forty-eight public schools located within the 10-mile EPZ were evaluated. One deputy superintendent, ten principals, five assistant principals, two transportation directors, one transportation staff member, two members of school safety committees, and one faculty member were interviewed at their respective schools. Everyone interviewed demonstrated an excellent understanding of his or her responsibilities and procedures during an emergency situation. Emergency notification of the schools can be accomplished by telephone, tone alert radios activated by the EOC, two-way radios, facsimile messages, or electronic mail. The transportation director of the school district notifies bus drivers by telephone or pager.

York County's Office of Emergency Management (OEM) and the utility have worked closely with the county school districts and have developed an excellent program to protect the school children, and keep parents informed if an emergency were to occur at the Catawba Nuclear Station. School personnel are very appreciative of OEM's annual training of their faculty in evacuation procedures and OEM's on-going coordination with the schools. All involved parties are to be commended for this excellent program. See listing of evaluated schools in Appendix 5 on page 40.

- a. **MET:** Criteria 3.a.1 and 3.c.2.

- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ARCA_s - RESOLVED: NONE**
- f. **PRIOR ARCA_s - UNRESOLVED: NONE**

2.1.4 State Traffic Control

The establishment of traffic control points (TCPs) was effectively demonstrated out-of-sequence at designated TCPs. Three South Carolina Highway Patrol (SCHP) Troopers participated in discussions of the process by which they would be alerted, briefed, issued dosimetry, and positioned. Plans identify designated TCPs, routes and designated reception centers for evacuees. The SCHP personnel's familiarity with the county plan and requirements indicates a close inter-departmental relationship. The ability of the SCHP to supervise the deployment of personnel and maintain oversight during an evacuation is facilitated by communications between the York County Emergency Operations Center and the SCHP.

- a. **MET: Criteria 1.d.1, 3.a.1, 3.b.1, 3.d.1 and 3.d.2.**
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ARCA_s - RESOLVED: NONE**
- f. **PRIOR ARCA_s - UNRESOLVED: NONE**

2.1.5 Lake Warning

The South Carolina Department of Natural Resources, State Law Enforcement Division (SLED) successfully demonstrated their ability to conduct lake warning and clearing of boaters on Lake Wylie at the Nivens Creek Public Boat Landing. Interviews were conducted with two SLED officers. The officers had been issued personal dosimetry and were knowledgeable of their dosimeters, time checks, reporting requirements, and turnback levels. The officers were thoroughly familiar with their duties and responsibilities and provided detailed explanations of the procedures that would be used including evacuation routes, reception center locations, and other information to assist

evacuees. Primary **and** secondary communications capabilities were available. The officers were confident of their ability to successfully accomplish their duties.

- a. **MET: Criteria 1.d.1, 3.a.1, 3.b.1 and 5.a.3.**
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ARCA_s - RESOLVED: NONE**
- f. **PRIOR ARCA_s - UNRESOLVED: NONE**

3 SUPPORT JURISDICTIONS

3.1 LANCASTER COUNTY

3.1.1 Reception Center and Congregate Care

Lancaster County Emergency Services is the coordinating agency for the monitoring, decontamination, registration and temporary care of evacuees. Support was provided by the South Carolina State Guard, County and City fire and police services, emergency medical services (EMS), **and** the American Red Cross (ARC). Emergency workers were fully trained in their respective responsibilities and were extremely professional during the entire operation. After monitoring and decontamination, evacuees were directed to the high school gymnasium where ARC personnel registered them and provided temporary shelter. **The** activities demonstrated reflect considerable training and dedication in providing for the health and **safety** of the public in the event of **an** emergency at the Catawba Nuclear Station.

- a. **MET Criteria 1.d.1, 3.a.1, 6.a.1 and 6.c.1.**
- b. **DEFICIENCY NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ARCA_s - RESOLVED: NONE**
- f. **PRIOR ARCA_s - UNRESOLVED: NONE**

3.2 CHESTER COUNTY

3.2.1 Reception Center and Congregate Care

The Chester County Emergency Management Agency (CEMA) had overall responsibility for the Reception and Congregate Care facility at the Lewisville Middle School. Personnel, operational and logistical support were provided by the Chester Fire Service. The Chester County Chapter of the American Red Cross (ARC) coordinated the operation of the congregate care facility. The CEMA successfully established the facility and demonstrated procedures for monitoring and decontaminating evacuees and vehicles, and for separating uncontaminated and contaminated evacuees and vehicles. All personnel interviewed were knowledgeable of radiological exposure control. Following monitoring and decontamination, evacuees were directed to the congregate care facility where ARC volunteers successfully demonstrated initial evacuee registration and assignment to shelter. All necessary operations at this facility were performed in a competent and professional manner.

- a. MET: Criteria 1.d.1, 3.a.1, 6.a.1 and 6.c.1.
- b. DEFICIENCY: NONE
- c. AREAS REQUIRING CORRECTIVE ACTION: NONE
- d. NOT DEMONSTRATED: NONE
- e. PRIOR ARCAs - RESOLVED: NONE
- f. PRIOR ARCAs - UNRESOLVED: NONE

3.3 CHEROKEE COUNTY

3.3.1 Reception Center and Congregate care

Cherokee County Emergency Preparedness (CEP) was responsible for the reception and congregate care operation established at the Gaffney High School. Personnel, operational and logistical support were provided by the Gaffney Fire Department and Gaffney Police Department. The ARC coordinated the operation of the congregate care facility. Cherokee County successfully demonstrated procedures for monitoring and decontaminating evacuees and vehicles. They had procedures to separate uncontaminated and contaminated evacuees and vehicles. Following monitoring and decontamination, evacuees were escorted to the Congregate care facility where ARC volunteers successfully demonstrated initial evacuee registration and assignment to the shelter. The CEP and supporting organizations carried out all necessary operations at this facility in a competent and professional manner.

- a. **MET:** Criteria 1.d.1, 3.a.1, 6.a.1 and 6.c.1
- b. **DEFICIENCY:** NONE
- e. **AREAS REQUIRING CORRECTIVE ACTION** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ARCA_s - RESOLVED:** NONE
- f. **PRIOR ARCA_s - UNRESOLVED** NONE

3.4 UNION COUNTY

3.4.1 Reception Center and Congregate *Care*

Union County's Office of Emergency Preparedness *is* responsible for monitoring, decontaminating, and providing temporary care *of* evacuees *from* risk counties. Emergency workers involved in this operation performed their duties in a highly skilled and professional manner, and were fully aware of action levels, exposure limits, and personal dosimetry. Upon completion of monitoring and decontamination, if necessary, evacuees were directed to the high school where the Union **County** Chapter *of the* American Red Cross had established *an* emergency shelter. The congregate care operation *was* conducted with a high level of skill, *and* a professional attitude. **All** personnel reflected considerable training *and* preparedness in protecting the health *and* safety of the public in the event of *an* incident at the Catawba Nuclear Station.

- a. **MET:** Criteria 1.d.1, 3.a.1, 6.a.1 and 6.c.1.
- b. **DEFICIENCY** NONE
- e. **AREAS REQUIRING CORRECTIVE ACTION** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ARCA_s - RESOLVED:** NONE
- f. **PRIOR ARCA_s - UNRESOLVED:** NONE

4. STATE OF NORTH CAROLINA

4.1 State Emergency Operations Center

The Director of the State Emergency Response Team (SERT) effectively directed and coordinated activities in the SEOC. The staff was proactive in planning and implementing PADs, coordinating with Gaston and Mecklenberg Counties, the State of South Carolina, and the Catawba Nuclear Station. The Radiological Emergency Preparedness Technical Advisor, the utility, South Carolina liaisons, and Radiation Protection personnel worked cooperatively in clarifying issues and creatively responding to the events of this exercise. Competent and cooperative State personnel, Amateur Radio Emergency Service personnel and other volunteers supported the SEOC operation. Staff conducted informative briefings and agency updates. Activation of the sirens and the Emergency Alert System was prompt.

a. **MET:** Criteria 1.a.1, 1.b.1, 1.d.1, 1.e.1, 2.a.1, 2.b.1, 2.b.2, 5.a.1 and 5.a.3.

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:**

Issue No.: 12-02-1.c.1-A-01

Condition: At 1043, a Site Area Emergency was initially declared. Ten minutes later at 1053, the utility declared a General Emergency. Immediately after this, the State of North Carolina assumed Direction and Control from the counties. At 1105, the State made the decision that all emergency workers should ingest KI because readings taken by the State Field Teams and dose projections indicated that the level of radioactive iodine was high enough to warrant this protective action. Although the State was to communicate the decision to Gaston and Mecklenberg counties through Emergency Services, the decision to ingest KI by Emergency Workers was not communicated. Both Gaston and Mecklenberg County Emergency Management Directors stated that they did not receive the KI ingestion order.

Possible Cause: Because the exercise elevated to a General Emergency only 10 minutes after reaching a Site-Area Emergency, the EOC was a flurry of activity and the decision to have KI ingested by emergency workers was not conveyed to the counties.

Reference: NUREG-0654, J. 10.e. Criterion 1.c.1. Catawba Nuclear Station Plan, Part 1, pages 65-66.

Effect: The failure of the State to communicate the decision to ingest KI for emergency workers increased the likelihood that the county emergency workers would receive unnecessary exposure to the thyroid from radioiodine.

Recommendation: Review and revise Standard Operation Guides and procedures **as** necessary to assure that all appropriate State directives are expeditiously communicated to the counties. Develop a mechanism to verify that the directives have been received and acted upon by the counties.

Schedule of Corrective Actions: NCEM and DHHS personnel are reviewing local Standard Operating Procedures to ensure KI directives are expeditiously communicated to the counties. This issue **will** be re-demonstrated during the next scheduled REP exercise.

- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ARCAs - RESOLVED:** NONE
- f. **PRIOR ARCAs - UNRESOLVED:** NONE

4.2 Dose Assessment

The **Worth** Carolina Department of Radiological Protection, dose assessment staff performed effectively in calculating independent dose projections and advising decision-makers on issues related to protecting public health **and** safety. **They also** effectively managed the field teams. Dose calculations were performed using **an** in-house Excel spreadsheet developed for the Catawba facility. Dose calculations were **compared** with those from **the** utility and were found to be consistent. The Dose Assessment Director actively **participated** in the protective action decision **making** process. The staff was professional and extremely competent in **performing** their mission.

- a. **MET:** Criteria 1.a.1, 1.b.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.1 and 2.b.2.
- b. **DEFICIENCY** NQNE
- E **AREAS REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ARCAs - RESOLVED:** NQNE
- f. **PRIOR ARCAs - UNRESOLVED:** NONE

5. RISK JURISDICTIONS

5.1 GASTON COUNTY

5.1.1 Emergency Operations Center

The Emergency Operations Center staff was proficient and worked well as a team. **An** electronic paging system was **used** to alert and mobilized EOC staff and key participants. The Emergency Management Coordinator provided excellent direction and control throughout the exercise. Staff briefings and the protective action recommendation and decision were thorough and timely. Maps and displays were constantly updated and referred to during briefings. The EM-2000 system worked well throughout the exercise. The staff and volunteers, including Amateur Radio Emergency System (ARES) operators, and the American Red Cross, should be commended for doing an excellent job.

- a. **MET: Criteria 1.a.1, 1.b.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2, 2.c.1, 3.a.1, 3.b.1, 3.c.1, 3.c.2, 5.a.1 and 5.a.3.**
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ARCA_s - RESOLVED: NONE**
- f. **PRIOR ARCA_s - UNRESOLVED: NONE**

5.1.2 Protective Actions for Schools

The Gaston County School System EOC Representative and the Principal and Assistant Principal of Forrestview High School successfully demonstrated their knowledge of plans and procedures concerning protective actions for the students and faculty of affected **County** Schools in the event of an accident at the Catawba Nuclear Station. Receipt and dissemination of emergency notifications were discussed. Primary and backup communications are available and buses are equipped **with** mobile telephones. Officials also discussed transportation requirements for moving students to host locations. Adequate bus and driver resources are available from within the county to move students in a single trip to host schools at **a** Site Area Emergency. School officials **simulated** this process during the exercise and demonstrated the availability **of** resources and capability to perform this task.

- a. **MET: Criterion 3.c.2.**

- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ARCA_s - RESOLVED:** NONE
- f. **PRIOR ARCA_s - UNRESOLVED:** NONE

5.1.3 Emergency Worker Decontamination

The Lowell Volunteer Fire Department successfully demonstrated the monitoring and decontamination of Emergency Workers, equipment, and vehicles. **An** interview and walk-through of additional activities was conducted after a vehicle was processed for contamination **and** the driver was cleared. The facility set-up, control barriers and personnel action minimized the potential for cross-contamination of personnel, vehicles and **workers**. Participants from the Lowell volunteer fire department were knowledgeable and highly motivated and effectively followed the Gaston County Standard Operating Guides for Radiation Monitoring, Decontamination and Exposure Control (July, 2001).

- a. **MET:** Criteria 3.a.1 and 6.b.1.
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ARCA - RESOLVED:** NONE
- f. **PRIOR ARCA - UNRESOLVED:** NONE

5.1.4 Traffic Control Points

Representatives from the North Carolina Highway Patrol, Gaston County Police Department, Mount Holly Police Department and Belmont Police Department successfully demonstrated traffic control procedures. Representatives confirmed that adequate personnel and vehicular resources are available. They understood their duties and the instructions that would be provided to the public. All demonstrated knowledge of radiological exposure control. Radiological equipment kits were available and procedures for distributing equipment were described.

- a. **MET:** Criteria 1.d.1, 3.a.1, 3.b.1, 3.d.1 and 3.d.2.
- b. **DEFICIENCY:** NONE

- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ARCAs – RESOLVED: NONE**
- f. **PRIOR ARCAs – UNRESOLVED: NONE**

5.1.5 Reception Center & Congregate Care

Reception and congregate care were successfully demonstrated at the Mount Holly Middle School. All activities were performed in compliance with the Gaston County Standard Operating Guides for Shelter Management (July, 2001) and Radiation Monitoring, Decontamination and Exposure Control (July, 2001). Participants from Emergency Medical Services, Gastonia Fire Department, the Gaston County HAZMAT Team, Sheriff's Department, the American Red Cross, and other supporting volunteer organizations were knowledgeable, motivated and demonstrated their duties and responsibilities. Operations were organized and conducted to minimize cross-contamination of personnel, vehicles and workers.

- a. **MET: Criteria 3.a.1, 6.a.1 and 6.c.1.**
- b. **DEFICIENCY NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ARCAs - RESOLVED: NONE**
- f. **PRIOR ARCAs - UNRESOLVED: NONE**

5.2 MECKLENBERG COUNTY

5.2.1 Emergency Operations Center

Activated at 0835, the EOC is equipped to handle any county emergency with a dedicated and prepared staff. They demonstrated their ability to alert and notify the public in the event of a radiological emergency. The Emergency Management Director and the elected officials present, effectively coordinated protective action decisions, frequently briefed the staff and involved them in the entire response. Mecklenberg, as the lead North Carolina County, coordinated PADs, siren sounding and EAS message transmittal with North Carolina, South Carolina and the EPZ counties. Activation of the public alert and notification system was timely and in accordance with their plan.

- a. **MET:** Criteria 1.a.1, 1.b.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2, 2.c.1, 3.c.1, 3.c.2, 5.a.1 and 5.a.3.
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE
- a. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ARCAs - RESOLVED:** NONE
- f. **PRIOR ARCAs - UNRESOLVED:** NONE

5.2.2 Protective Actions for Schools

The Charlotte-Mecklenberg School System Director of Safety, a Transportation Specialist, the Kennedy Middle School Principal and Assistant Principal, and the Steele Creek Elementary School Assistant Principal participated in an interview pertaining to protective actions for schools. All participants were knowledgeable of the plans and procedures to affect a timely relocation of the students, teachers, **and** staff from both schools.

The Charlotte-Mecklenberg Schools Transportation Specialist explained that before **an** evacuation decision **is** made, the bus drivers would be contacted, assembled at parking areas, and be available for immediate dispatch. The buses would arrive at the schools within 10 minutes after being dispatched.

If evacuation **is** directed, buses travel from the schools to the University **of** North Carolina in Charlotte. The EOC would issue a **press** release to notify parents of the actions taken to protect their children and where they could pick them **up**. Each school official described in detail evacuation procedures for their school concerning bus numbering, student accountability, teacher/staff assignments to buses, law enforcement escort, and release of students to parents at the reception center.

- a. **MET:** Criterion 3.c.2.
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE
- a. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ARCAs - RESOLVED:** NONE
- f. **PRIOR ARCAs - UNRESOLVED:** NONE

5.2.3 Emergency Worker Decontamination

Personnel ~~from~~ Fire Station 24 in Pineville, NC successfully demonstrated their ability to monitor and decontaminate emergency workers and vehicles. The fire station was set up to receive and decontaminate emergency **workers**, equipment and vehicles in accordance with guidelines given in approved procedures. Personnel were familiar with radiological exposure control. Vehicle and personnel monitoring were observed and the fire station staff did ~~an~~ outstanding **job** of contamination monitoring **and** contamination control. This was the first Federal evaluation for Fire Station 24 and the firefighters had a strong positive attitude that was evident in the excellent demonstration.

- a. **MET** Criteria 3.a.1 **and** 6.b.1.
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ARCAs - RESOLVED:** NONE
- f. **PRIOR ARCAs - UNRESOLVED:** NONE

5.2.4 Traffic Control Points

A traffic control point (TCP) interview was conducted with the following law enforcement personnel: one Trooper from the North Carolina State Highway Patrol (NCSHP), Troop A; a Pineville Police Force Patrolman; and a Major, a Sergeant **and** a Patrolman from the Mecklenberg-Charlotte Police Force. **All** five personnel were knowledgeable of the purpose of TCPs and their responsibilities at the TCPs. They knew what information *to* provide the public concerning directions to the reception center and what radio station to tune to for receipt of emergency information and instructions.

The officers properly demonstrated how to zero their dosimeters and their use including how ~~often~~ to read the devices. They also knew the call back and ~~turn~~ back values. They knew the reason for taking KI, when to ingest the tablets, how ~~often~~, **and** possible side effects of KI. All of the officers had, and were familiar with, the TCP Booklet prepared by NCSHP.

- a. **MET:** Criteria 1.d.1, 3.a.1, 3.b.1, 3.d.1 and 3.d.2.
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ARCAs – RESOLVED: NONE**
- f. **PRIOR ARCAs – UNRESOLVED: NONE**

6. SUPPORT JURISDICTIONS

6.1 CLEVELAND COUNTY

6.1.1 Traffic Control Points

A representative from the Kings Mountain Police Department successfully demonstrated the County's Traffic Control procedures. Traffic control is the responsibility of the Kings Mountain Police Department and the Cleveland County Sheriff's Department provides primary assistance. The Police Department representative knew the three locations where the TCPs would be set-up to facilitate traffic flow to the reception and congregate care centers. The departments' familiarity with the county's emergency plan indicates a close working relationship with the Office of Emergency Management. In addition to local coordination, the Kings Mountain Police Department has initiated coordination with Gastonia Law Enforcement and the North Carolina Highway Patrol related to the flow of traffic into Cleveland County.

- a. MET: Criteria 1.d.1, 3.a.1 and 3.d.1.
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ARCAs – RESOLVED: NONE**
- f. **PRIOR ARCAs – UNRESOLVED: NONE**

6.1.2 Reception Center and Congregate Care

Members of the Cleveland County HazMat Team, the Kings Mountain, Oak Grove, Bethlehem, and Grover Fire Departments, and the Cleveland County American Red Cross (ARC) Chapter successfully demonstrated monitoring, decontamination, and registration of evacuees at the reception and congregate care center located at Kings Mountain Senior High School. The HazMat team, with assistance of the fire departments, successfully prepared the facility for accepting evacuees and vehicles. Following monitoring and decontamination, evacuees were directed to the Cleveland County Chapter of the ARC for registration. Through interview and discussion, the ARC volunteers described how they provide assistance to displaced families who had to leave

their homes ~~and~~ provide temporary care for children who were separated from their parents. All individuals interviewed were extremely professional and knowledgeable of their procedures.

- a. MET Criteria 3.a.1, 6.a.1 and 6.c.1.
- b. DEFICIENCY: NONE
- c. AREAS REQUIRING CORRECTIVE ACTION: NONE
- d. NOT DEMONSTRATED: NONE
- e. PRIOR ARCAs – RESOLVED: NONE
- f. PRIOR ARCAs – UNRESOLVED: NONE

6.2 UNION COUNTY (NC)

6.2.1 Emergency Operations Center

The Director and staff of the Union ~~County~~ Emergency Operations Center (EOC) successfully demonstrated emergency response operations. The Emergency Management Director activated the EOC upon being notified by York County that the Catawba Nuclear Station (CNS) had declared an Alert. The Director actively monitored events using EMS 2000 and the CNS secured website. At Site Area Emergency, the Director began telephoning EOC staff and the EOC was declared operational when the simulated mobilization was completed. The Director conducted frequent briefings, used the EOC staff effectively, took precautionary actions, and demonstrated seasoned leadership. All personnel assigned to staff the EOC were well trained, highly professional and demonstrated a capability to take necessary actions to safeguard the public.

- a. MET: Criteria 1.a.1, 1.b.1, 1.c.1, 1.d.1 and 2.a.1.
- b. DEFICIENCY NONE
- c. AREAS REQUIRING CORRECTIVE ACTION: NONE
- a. NOT DEMONSTRATED: NONE
- e. PRIOR ARCAs – RESOLVED: NONE
- f. PRIOR ARCAs – UNRESOLVED: NONE

6.2.2 Traffic Control Points

Two members of the Union County (NC) Sheriffs Office successfully demonstrated their knowledge of traffic control procedures for the evacuee reception center at Weddington High School. The law enforcement officers demonstrated their knowledge of the specific duties, their chain of command and the need to keep superiors informed of the ongoing situation. Although a host county, the officers were briefed on protective action procedures by the Radiological Officer and knew how to read the dosimetry and record data.

a. **MET:** Criteria 3.a.1, 3.b.1, 3.d.1 and 3.d.2

b. **DEFICIENCY:** NONE

AREAS REQUIRING CORRECTIVE ACTION: NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs – RESOLVED:** NONE

f. **PRIOR ARCAs – UNRESOLVED:** NONE

6.2.3 Reception Center and Congregate Care

Union County successfully demonstrated monitoring, decontamination and temporary care of evacuees at the Weddington High School. The Radiological Officer supervised volunteers from the Wesley Chapel Fire and Rescue and officers from the Union County Sheriff's Office in the use of dosimetry. Emergency workers demonstrated the proper operational checks and use of equipment. Traffic and evacuee flow were effectively designed to separate contaminated and uncontaminated persons and vehicles.

The Facility Manager lead a well-trained and highly motivated team of nurses, health care professionals, and support service staff to register, orient, and support the needs of the evacuees that included providing separate facilities for special needs evacuees. Plans for the provision of all essential services, including food, sanitation, childcare, medical care and first aid were clearly explained. All participants including the volunteer evacuees from the Boy Scouts exhibited remarkable energy and enthusiasm during the exercise.

a. **MET:** Criteria 3.a.1, 6.a.1 and 6.c.1.

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

- e. PRIOR ARCAs – RESOLVED: NONE
- f. PRIOR ARCAs – UNRESOLVED: NONE

7. SUMMARY OF AREAS REQUIRING CORRECTIVE ACTION

7.1 2002 ARCA

7.1.1 12-02-1.c.1-A-01 State of North Carolina State Emergency Operations Center

Condition: At 1043, a Site Area Emergency was initially declared. Ten minutes later at 1053, the utility declared a General Emergency. Immediately after this, the State of North Carolina assumed Direction and Control from the counties. At 1105, the State made the decision **that** all emergency workers should ingest KI because readings taken by the State Field Teams and dose projections indicated that the level of radioactive iodine was **high** enough to warrant this protective action. Although the State was to communicate the decision **to** Gaston and Mecklenberg counties **through** Emergency Services, the decision to ingest KI by Emergency Workers was not communicated. Both Gaston and Mecklenberg County Emergency Management Directors stated that they **did** not receive the KI ingestion order.

Possible Cause: Because the exercise elevated to a General Emergency only 10 minutes after reaching a Site-Area Emergency, the EOC was a **flurry of** activity and the decision to have KI ingested by emergency workers was not conveyed to the counties.

Reference: NUREG-0654, J.10.e. Criterion 1.c.1. Catawba Nuclear Station **Plan, Part 1**, pages 65-66.

Effect: The failure of the State to communicate the decision to ingest KI for emergency workers increased **the** likelihood that the county emergency workers would receive unnecessary exposure to the thyroid from radioiodine.

Recommendation: Review and revise Standard Operation Guides and procedures as necessary to assure that all appropriate State directives are expeditiously communicated to the counties. Develop a mechanism to verify that the directives have been received and acted upon by the counties.

Schedule of Corrective Actions: NCEM and DHHS personnel are reviewing local Standard Operating Procedures to ensure KI directives are expeditiously communicated to the counties. This issue will be *re-*demonstrated during the next scheduled REP exercise.

APPENDIX 1

ACRONYMS AND ABBREVIATIONS

The following is a list of the acronyms and abbreviations, which may have been used in this report.

ACRES	Amateur Civil Radio Emergency Service
ARC	American Red Cross
ARCA	Area Requiring Corrective Action
CDV	Civil Defense - Victoreen
CFR	Code of Federal Regulations
CNS	Catawba Nuclear Station
DHEC	Department of Health and Environmental Control
DHHS	Department of Health and Human Services
DNR	Division of Natural Resources
DOC	Department of Commerce
DOE	Department of Energy
DOI	Department of the Interior
DOT	Department of Transportation
DRD	Direct Reading Dosimeter
EAS	Emergency Alert System
ECL	Emergency Classification Level
EIS	Emergency Information System
EMC	Emergency Management Center
EMS	Emergency Medical Service
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPA	Environmental Protection Agency
EPZ	Emergency Planning Zone
ER	Emergency Room
ERC	Emergency Response Coordinator
EWD	Emergency Worker Decontamination
FDA	Food and Drug Administration
FEMA	Federal Emergency Management Agency
FEOC	Forward Emergency Operations Center
FMT	Field Monitoring Teams
GE	General Emergency
IRIS	Internet Routed Information System

KI	Potassium Iodide
mR	milliroentgen
mR/h	milliroentgen per hour
NOUE	Notification of Unusual Event
NRC	Nuclear Regulatory Commission
NUREG-0654	NUREG-0654/FEMA-REP-1, Rev. 1, <i>"Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980</i>
QRO	Offsite Response Organization
PAD	Protective Action Decision
PAG	Protective Action Guide
PAR	Protective Action Recommendation
PD	Police Department
PIO	Public Information Officer
R	Roentgen
RAC	Regional Assistance Committee
REA	Radioactive Emergency Area
REM	Roentgen Equivalent Man
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
R/h	Roentgen(s) per hour
RO	Radiological Officer
SAE	Site Area Emergency
SCEPD	South Carolina Emergency Preparedness Division
SEOC	State Emergency Operations Center
SERT	State Emergency Response Team
SOP	Standard Operating Procedure
TCP	Traffic Control Point
TLD	Thermoluminescent Dosimeter
UNCC	University of North Carolina at Charlotte
USDA	U.S. Department of Agriculture
VFD	Volunteer Fire Department

APPENDIX 2

EXERCISE EVALUATORS

The following is a list of the personnel who evaluated the Catawba Nuclear Station exercise on March 26, 2002. The organization which each evaluator represents is indicated by the following abbreviations:

FEMA	▪ Federal Emergency Management Agency
ICF	▪ ICF Consulting Incorporated
NRC	▪ Nuclear Regulatory Commission
USDA	▪ United States Department of Agriculture

Lawrence A. Robertson
Thomas E. Reynolds

RAC Chairman
Co-RAC Chairman

<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
Joseph E. Canoles	Chief Evaluator	FEMA
STATE OF SOUTH CAROLINA		
State Emergency Operations Center	James Redington Rosemary Samsel	ICF ICE
SEOC – Radiation Liaison	William Neidermeyer Jeffery Lietzow	ICF ICF
Dose Assessment	Reginald Rodgers	ICF
Emergency Operations Facility	Robert Trojanowski	NRC
Joint Information Center	Al Yaworski Helen Wilgus	ICF ICF
LP-1	Jesse Johnson	ICF
YORK COUNTY		
Emergency Operations Center	Joseph Canoles William Vocke	FEMA ICF
Emergency Worker Decontamination	John Turley	ICF
Protective Action for Schools	William Vocke	ICF

<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
State Traffic Control	John Turley	ICF
Lake Warning	John Turley	ICF
LANCASTER COUNTY		
Temporary Care of Evacuees	Harold Spedding	ICF
CHESTER COUNTY		
Temporary Care of Evacuees	Thomas Deaner	ICF
CHEROKEE COUNTY		
Temporary Care of Evacuees	Thomas Deaner	ICF
UNION COUNTY		
Temporary Care of Evacuees	Harold Spedding	ICF
TECHNICAL ASSISTANCE		
Field Teams	James Willison Thomas Deaner	ICF ICF
STATE OF NORTH CAROLINA		
State Emergency Operations Center	Robert Perdue Ron Niemeyer	FEMA USDA
Dose Assessment	Deborah Blunt	ICF
GASTON COUNTY		
Emergency Operations Center	Eddie Hickman Robert Bradshaw	FEMA ICF
Protective Action for Schools	Robert Bradshaw	ICF
Emergency Worker Decontamination	James Lightner	ICF
Traffic Control Points	Robert Bradshaw	ICF
Temporary Care of Evacuees	James Lightner	ICF

<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
MECKLENBERG COUNTY		
Emergency Operations Center	Thomas Reynolds Thomas Comi	FEMA ICF
Protective Action for Schools	Thomas Comi	ICF
Emergency Worker Decontamination	Marynette Herndon	ICF
Traffic Control Points	Thomas Comi	ICF
CLEVELAND COUNTY		
Traffic Control Points	Janice Jackson	ICF
Temporary Care of Evacuees	Janice Jackson	ICF
UNION COUNTY		
Emergency Operations Center	Walter Gawlak	ICF
Traffic Control Points	Chuck Richey	ICF
Temporary Care of Evacuees	Walter Gawlak	ICF
TECHNICAL ASSISTANCE		
Field Teams	James Lightner Marynette Herndon Thomas Brown	ICF ICF ICF

APPENDIX 3

EXERCISE CRITERIA AND EXTENT-OF-PLAY AGREEMENTS

This appendix contains the exercise Criteria which were scheduled for demonstration in the Catawba Nuclear Station exercise on March 26,2002 and the extent-of-play agreement approved by FEMA Region IV.

A. Exercise Criteria

Following are the specific radiological emergency preparedness Criteria scheduled for demonstration during this exercise.

SOUTH CAROLINA

**Extent of Play Agreement
Catawba Nuclear Station Exercise
March 25-27, 2002**

All selected exercise evaluation areas will be demonstrated in accordance with respective plans and FEMA criterion. Exceptions are noted below.

1. Emergency Operations Management.

1.a. Mobilization

(Criterion 1.a.1) All state and local government personnel will be pre-positioned. Alert rosters will be provided to FEMA evaluators and a discussion of call-down procedures will be conducted.

1.c. Direction and Control

(Criterion 1.c.1) Direction and Control will take place at the State Emergency Operations Center (SEOC) and the York County Emergency Operations Center (EOC) Rock Hill, SC. State participants include the Emergency Preparedness Division (EPD), the Department of Health and Environmental Control, Bureau of Land Waste Management, and the Department of Social Services. A simulation cell will represent the remainder of the State Emergency Response Team (SERT).

1.e. Equipment and Supplies

(Criterion 1.e.1) Potassium iodide for emergency workers will be simulated by candy or other means (empty envelop marked KI). A 14-day supply of KI for 7000 Emergency Workers and institutionalized Individuals is stored at FNF County EOCs, and Health Departments and at BHEC headquarters in Columbia, SC. Advance fosters of emergency workers are not maintained. KI is not stockpiled for members of the general public.

2. Protective Action Decision Making.

2a. Emergency Worker Exposure Control

(Criterion 2.a.1.) **Dose** limits for emergency workers are pre-determined. Emergency workers may voluntarily exceed dose limits only after being fully informed by BHEC of the biological effects of radiation and possible consequences of excessive exposure.

(Criterion 2.b.1.) Protective action recommendations by DHEC will be based on an evaluation of information received from the licensee, independent dose assessments and simulated field monitoring data input.

(Criterion 2.b.2.) The Governor or his designee will demonstrate the ability to make appropriate protective action decisions (PADs) based on recommendations from DHEC. PADs that require sheltering or evacuation of residents or transients in the 10-mile EPZ will be coordinated with the Chief County Elected Official or designee and the State of North Carolina EOC.

2.d. RAD Assessment PAD-Inaestien Exposure Pathway. This Evaluation Area will not be demonstrated.

2.e. RAD Assessment PAD Relocation, Re-Entrv and Return. This Evaluation Area will net be demonstrated.

3. Protective Action Implementation.

3.a. Emeraencv Worker Exposure Control

(Criterion 3.a.1.) Emergency Workers or Emergency Worker Teams will use direct reading and simulated Permanent Record Dosimeters (PRDs) to monitor and control their radiation exposure. Emergency workers in low exposure rate areas will use PRDs and may use direct reading dosimeters or place them in centralized areas.

3.b. Implementation of KI Decision.

(Criterion 3.b.1.) KI is distributed io Emergency Workers prior to their being dispatched. KI is taken by Emergency Workers on order by the State Health Officer or designee.

3.c. PAD Implementation-Special Populations.

(Criterion 3.c.1.) York County will demonstrate the ability and resources to implement appropriate protective actions for special population groups. A list of people with special transportation needs will be provided to evaluators, Evacuation assistance will be simulated.

(Criterion 3.c.2) York County will simulate school evacuations by out-of-sequence interviews with key school staff members on **March 27, 2002**. Evaluators will meet with escorts at the York County EOC, at 8:00 A.M. The following schools will be evaluated:

Bethel Elementary	Applied Tech. Center	York Road Elementary
Clover High	Mt. Gallant Elementary	York High/FDJTC
Fort Mill High	Northwestern High	York Junior High
Fort Mill Middle	Rosewood Elementary	

3.d. Traffic and Access Control,

(Criterion 3.d.1.) Traffic and Access Control Points are pre-determined. Traffic Control Point Three (**SC** 274 and Campbell Road) and Traffic Control Point 4 (SC 274 and Alison Creek Church Road) will be demonstrated at 8:00 A.M., on-scene. State Access Control Point to Lake Wiley (Nivens Creek Public Boat Landing) will be demonstrated at 9:30, on-scene. Evaluator will meet escort at 7:30 A.M. at **the** York County EOC.

(Criterion 3.d.2.) Actions to identify and remove impediments to evacuation will be demonstrated by discussion with officers manning TCPs.

3.e. Implementation of Ingestion Pathway Decisions. This Evaluation Area will not be demonstrated.

3.f. Relocation Re-Entry and Return Implementation. This Evaluation Area will not be demonstrated.

4. Field Measurement and Analysis.

4.a. Plume Phase Field Measurements and Analyses. This evaluation area will not be demonstrated. Teams will be in the field for training purposes only.

4.b. Post Plume Phase Field Measurements and Sampling. This Evaluation Area will not be demonstrated.

4.c. Laboratory Operations. This evaluation area will not be demonstrated.

5. Emergency Notification and Public Information.

5.a. Activation of the Prompt Notification System. (PNS)

(Criterion 5.a.1.) The State will coordinate Protective Action Decisions (PAD) with the Chief South and North Carolina county elected officials or designees and the State of North Carolina EOC. At Site Area Emergency, the Site will coordinate a silent test of the siren system surrounding Catawba Nuclear Station (CNS). A print-out of the silent test results will be provided to the FEMA evaluator. A pre-scripted "Stay Tuned" EAS message and follow-on news release will be transmitted from the State Emergency Operations Center (SEOC) to the Local Primary (LP-1) EAS station. A "test" EAS message will be simulated and an appropriate EAS message will be transmitted to the LP-1 station. The LP-1 station will have staff available for interview during the demonstration.

(Criterion 5.a.2.) Fast Breaking Scenario. This Evaluation Area will not be demonstrated.

(Criterion 5.a.3.) FEMA Approved Exception Areas. This Evaluation Area will not be demonstrated.

5.b. Emergency information and Instructions for the Public and the Media.

(Criterion) 5.b.1.) The State and York County will demonstrate the ability to coordinate the formulation and dissemination of accurate information and instructions to the news media at the Joint Information Center (JIC). Rumor control for the State and York County will be demonstrated at the JIC. Rumor control personnel will provide a log of rumor calls to the FEMA Evaluator.

6. Support Operations/ Facilities.

6.a. Monitoring /Decontamination of Evacuees and Emergency Workers. Registration of Evacuees.

(Criterion 6.a.1.) **Host** county Reception Centers will be demonstrated out-of-sequence. **At least six** people will be monitored and registered. Personnel decontamination will be demonstrated via walk-through and discussion. **A** monitoring productivity rate will not be developed. State and local plans require the monitoring of evacuees only when there has been an actual release. Once the determination has been made to initiate evacuee monitoring, **OROs** are prepared to monitor 100% of the evacuated population who may have been exposed to radiation as rapidly as possible. **At least two** vehicles will be monitored and one vehicle decontaminated in accordance with local SOPs. Water will be used to demonstrate vehicle decontamination procedures. Reception Centers to be evaluated are:

Cherokee:	Gaffney High School at 10:00 A.M.
Chester:	Lewisville High School at 5:00 P.M.
bancaster:	bancaster High School at 5:00 P.M.
Union:	Union High School at 2:00 P.M.

York County will demonstrate Emergency Worker Monitoring and Decontamination out-of-sequence **at 6:30 P.M., March 25, 2002**, at the Bethany Fire Department. Evaluators will meet at the York County EOC at 5:45 P.M. **Two** individuals will be monitored. Personnel decontamination will be demonstrated by discussion and walk-through. The Emergency Worker Monitoring and Decontamination station to be evaluated is: Bethany Santiago Fire Department.

6.b. Monitoring and Decontamination of Emergency Worker Equipment.

(Criterion 6.b.1) Two vehicles will be monitored and one vehicle will be decontaminated. Water will be used to demonstrate vehicle decontamination

procedures York County will demonstrate this Evaluation Area concurrently with 6.a.. above.

6.c. Temporary Care of Evacuees.

(Criterion 6.c.1.) Host County Shelters will be demonstrated out-of-sequence and concurrently with Evaluation Area 6.a, above. Procedures that assure that only non-contaminated persons enter shelters will be demonstrated. Shelters to be evaluated are:

Cherokee:	Gaffney High School
Chester:	Lewisville High School
Lancaster:	Lancaster High School
Union:	Union High School

6.d. Transportation and Treatment of Contaminated injured Individuals.

(Criterion 6.d.1.) York county conducted an out-of-sequence **MS-1** Hospital drill with Piedmont Medical Center on September 27, 2001.

Catawba Nuclear Station REP Exercise
SUMMARY OF OUTSIDE EXERCISE ACTIVITIES
March 25-26, 2002

OUTSIDE ACTIVITY	STATE & YORK	CHEROKEE	CHESTER	LANCASTER	UNION
3.c.2 Protective Actions for Schools	8:00 A.M. March 27th York County EOC				
3.d Traffic and Access Control	7:30 A.M. York County EQC TCP 3, SC 274 & S 80 TCP 4, SC 274 & S 1081				
5.a.1 Emergency Notification and Public Information	9:30 A.M. Nivens Creek Public Boat Landing 1				
6 a & b Monitoring & Decontamination of Emergency Workers	York County EW Decon 6:30 P.M., March 25th Bethany Fire Dept.				

6.a Monitoring & Decontamination of Evacuees and Registration of Evacuees		10:00 A.M. Gaffney HS	5:00 P.M. Lewisville M.S.	5:00 P.M. Lancaster HS	2:00 P.M. Union High Complex
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SITE: <u>CATAWBA</u>							
STATE: <u>SOUTH CAROLINA</u>							
EX DATE: <u>3/26/02</u>							
TYPE: <u>Partial Participation</u>							
	STATE	York	Cherokee	Chester	Lancaster	Union	
1. EMERGENCY OPERATIONS MANAGEMENT							
1.a. Mobilization	✓	✓					
1.b. Facilities	✓	✓					
1.c. Direction and Control	✓	✓					
1.d. Communications	✓	✓					
1.e. Equipment/Supplies	✓	✓					
2. PROTECTIVE ACTION DECISIONS							
2a. Emergency Worker Exposure control	✓						
2.b. Dose Assessment /PAR/PAD	✓						
2.c. PAD-Special Populations	✓						
2.d. RAD Assessment- IPZ							
3. PROTECTIVE ACTION IMPLEMENTATION							
3.a. Emergency Worker Exposure Control	✓	✓	✓	✓	✓	✓	
3.b. Potassium Iodide (KI)	✓	✓					
3.c. Special Populations		✓					
3.d. Traffic/Access Control	✓						
3.e. Ingestion Pathway - Implementation							
3.f. Ingestion Pathway - RRR							
4. FIELD MEASUREMENT AND ANALYSIS							
4.a. Plume Phase							
4.b. Post Plume							
4.c. Lab Operations							
5. EMERGENCY NOTIFICATION/PUBLIC INFORMATION							
5.a. PNS Activation	✓	✓					
5.a. Emergency Information/Instructions	✓	✓					
6. SUPPORT OPERATIONS/FACILITIES							
6.a. Monitoring/Decontamination of Emergency Workers		✓					
6.a. Monitoring/Decontamination of Evacuees			✓	✓	✓	✓	
6.b. EW Equipment Decontamination		✓					
6.c. Congregate Care			✓	✓	✓	✓	
6.d. Medical Services		✓					

NORTH CAROLINA

CATAWBA NUCLEAR STATION

2002 Extent of Play Agreement

GENERAL INFORMATION

A. SCENARIO

- Scenario will be developed by the Catawba Utility in accordance with FEMA guidelines
- A wind shift will be included in the scenario with the potential to change protective action recommendations.
- Failure of one communication link. Wind should be towards 90 degrees.
- The plume should include iodine.
- Exercise will begin at approximately 0800 with an Alert declaration
- At the Site Area Emergency and General Emergency sirens and EAS activation will be simulated while conducting an actual Silent Test.
- Exercise termination at 1300 or when demonstrations are complete

B. OTHER

- State and County participants will be pre-positioned.
- North Carolina will provide a liaison to SC EOC.
- South Carolina will provide liaison to NC EOC.
- Utility will provide liaisons to both NC and SC State EOCs.
- Utility to provide liaisons to NC and SC County EOCs.
- A state or county escort will be provided to FEMA Evaluator for out of sequence demonstrations,
- State of NC will provide one controller to each county EOC being evaluated, with the exception of Cleveland County, which will not be evaluated during this exercise.
- Pre and post exercise meetings will be held at Rock Hill, South Carolina.
- State and county OROs are in agreement with extent of play requirements, as outlined in FEMA's Radiological Exercise Methodology Guidance, September 12, 2001, unless otherwise noted in this EOP Agreement

1. EMERGENCY OPERATIONS MANAGEMENT

1.a – Mobilization:

Criterion 1.a.1:

OROs will use **effective** procedures to alert, notify, and mobilize emergency personnel and activate facilities in a timely manner, (NUREG-0654, A.4., D.3., 4., E.1., 2., H.4.)

EXTENT OF PLAY:

- **Participants:** State of NC, Mecklenburg, Gaston and Union Counties.
- All state and local government personnel will be pre-positioned.
- EOC personnel will report around 0800, depending on time Alert is declared.
- Alert rosters will be provided to FEMA evaluators. Players will discuss alert notification procedures with the evaluator.
- Radiation Protection's Mobile Laboratory and other field activities will be conducted "For Training Only" from the NC National Guard Facility at Douglas International Airport in Charlotte, NC. Field activities "Will Not" be evaluated as part of this exercise. Demonstrations will take place on scenario the day of the exercise beginning at 9:00 a.m. A FEMA Evaluator will provide feedback as part of the "Technical Assistance Program".
- Union County will simulate mobilization of response personnel at the EOC when demonstrating call down procedures. Some personnel may be called-up for "Training Only" and not for evaluation, EOC will be evaluated for REP exercise credit.

1.b – Facilities:

Criterion 1.b.1:

Facilities are sufficient to support the Emergency Response. (NUREG-0654, H.)

EXTENT OF PLAY:

- Participants: State of NC, Mecklenburg, Gaston & Union Counties.
- State and Counties will demonstrate EOC facilities in order to establish a baseline for the new exercise evaluation criterion,

1.c – Direction and Control:

Criterion 1.c. 1:

Key personnel ~~with~~ leadership roles for the ~~ORO~~ provide Direction and Control to that part of the overall response effort ~~for~~ which they are responsible. (NUREG-0654, A.1.d.,2.a.,b.)

EXTENT OF PLAY:

- Participants: State of NC, Mecklenburg, Gaston & Union Counties.
- Mecklenburg County will be the lead-coordinating county in North Carolina until Site Area Emergency. Following the simulated sounding ~~of~~ sirens and issuance of the first PAD recommendations to the public, Mecklenburg will request the State assume direction and control.
- State and county EOCs will provide periodic briefings to keep ~~all~~ staff members informed.
- The State's of North and South Carolina as well as the counties of York, SC, Gaston, Mecklenburg, and Union will coordinate decisions and keep each other advised ~~on~~ actions taken throughout the exercise.

1.d – Communications Equipment:

Criterion 1.d.1:

At least ~~two~~ communication systems are available and operate properly, and communication ~~links~~ are established with appropriate locations. Communications capabilities are managed in support of emergency operations. (NUREG-0654, F. 1,2.)

EXENT OF PLAY:

- Participants: State of NC, Mecklenburg, Gaston & Union Counties
- There will be one planned Communication breakdown/failure during ~~the~~ exercise. Breakdown will test one communication link as a back-up to Selective Signaling and the Decision Line.
- EM 2050 ~~will~~ be demonstrated during ~~the~~ exercise.
- Division of Radiation Protection field activities ~~will~~ be demonstrated for "Training Only" and not for evaluation. It will be demonstrated on scenario as part of ~~the~~ "FEMA/State Technical Assistance Program."

1.e – Equipment and Supplies to Support Operation:

Criterion 4.e.1:

Equipment, maps, displays, dosimeters, potassium iodide (KI), and other supplies are sufficient to support emergency operations.

(NUREG-0654 ,H., J.10.a.b.e.f.j k., 11, K.3.a.)

EXTENT OF PLAY:

- **Participants:** State of NC, Mecklenburg, Gaston & Union Counties
- Personnel at **State** and County **EOCs** (Gaston & Mecklenburg **Only**) with the Federal Evaluator will demonstrate distribution procedures for KI through “Discussion Only”.
- KI is only provided to emergency workers and institutionalized individuals inside the ten mile EPZ.
- Division of Radiation Protection field activities **will** be demonstrated for “**Training Only**” and not for evaluation. It will **be** demonstrated on scenario as **part** of the “FEMA/State Technical Assistance Program.”
- Robert Perdue will make a Staff assistance visit to the State and **Counties** to verify the availability and **currency** of KI.

2. PROTECTIVE ACTION DECISION MAKING

2a – Emergency Worker Exposure Control:

Criterion 2.a.1:

OROs use a decision making process, considering relevant factors and appropriate coordination, to insure that an exposure control system, including the use of MI, is in place for emergency workers including provisions to authorize radiation exposure in excess of administrative limits or protective action guides.

(NUREG-0654 ,K.4.)

EXTENT OF PLAY:

- **Participants:** State of NC, Mecklenburg, Gaston, Cleveland & Union **Counties**.
- MI will be discussed with the Federal Evaluator as indicated in 3.b
- Turn back values for field operations will be 5R
- State and county personnel inside the ten-mile EPZ will be provided the **following** equipment: 0-200 mR Self Reading Dosimetry, 20 R SRD, simulated TLDs and individual dose cards.
 - a State **and** county personnel outside the ten-mile EPZ will be provided the following equipment: 0-200 mR Self Reading Dosimetry, simulated TLDs and individual dose cards.

2.b - **Radiological** assessment and protective action recommendations and Decisions for **the** Plume Phase of the Emergency:

Criterion **2.b.1:**

Appropriate protective action recommendations are based on available information on plant conditions, field-monitoring data, and licensee and **ORO** dose projections, as well as knowledge of on-site and off-site environmental conditions.

(NUREG-0654, I.8., 10., 11., & Supplement 3.)

EXTENT OF PLAY:

- Participants: State of NC, Mecklenburg & Gaston Counties
- Radiation Protection will establish an independent **dose** assessment and projection team at the State EOC.
- The team will communicate with the Utility EOC, Mobile Lab and deployed field survey teams to obtain data for developing dose projections. Field activities will be demonstrated for "Training Only" and not **for** evaluation. It will be demonstrated **on** scenario at 9:00 a.m. as part of the "FEMA/State Technical Assistance Program."
- Back-up dose assessment will be demonstrated via a battery powered portable computer.

Criterion 2.b.2:

A decision-making process involving consideration of appropriate factors and necessary coordination is used to make protective action decisions (**PADs**) for the general public (including the recommendation for the use of **KL**, if **ORO policy**).

(NUREG-0654, J.9., 10.m.)

EXTENT OF PLAY:

- Participants: State of NC, Mecklenburg & Gaston Counties.
- Division of Radiation Protection will analyze technical data and make recommendations to SERT Leader and Gaston & Mecklenburg EM Coordinators.
- Protective Action Decisions will be discussed between Gaston and Mecklenburg counties and the State's of North and South Carolina via the Decision Line.
- Weather data will be predetermined and will include a wind shift during the exercise

2.c –Protective Action Decisions for Protection of Special Populations:

Criterion 2.c.1:

~~Protective~~ action decisions are made, as appropriate, for **special** population groups.
(NUREG-0654, J.9.,10.c.d.e.g.)

EXTENT ~~OF~~ PLAY:

- Participants: Mecklenburg& Gaston Counties
- Counties will demonstrate their procedures through discussion and review of a special populations ~~list~~

3. PROTECTIVE ACTION IMPLEMENTATION

3.a – Implementation of Emergency Worker Exposure Control:

Criterion 3.a.1:

The ~~OROs~~ issue appropriate ~~dosimeters~~ end procedures, and manage radiological exposure to emergency workers in accordance with ~~the~~ plans and procedures. Emergency workers periodically and ~~at the~~ end ~~of~~ each mission read their dosimeters and record the readings on the appropriate exposure record or chart.
(MUREG-0854, ~~K~~ 3)

EXTENT ~~OF~~ PLAY:

- Participants: State of NC, Mecklenburg, Gaston, Cleveland& Union Counties.
- State and county personnel inside the ten mile EPZ will have 0-200 mR dosimeters, 0-20 ~~R~~ dosimeters, simulated TLDs and individual dose cards.
- State and county personnel outside the ~~ten-mile~~ EPZ will have 0-200 mR dosimeters, simulated TLDs and individual dose cards.
- Turn back values will be 5R. Personnel ~~will~~ describe *what* procedures would be used when turn back values are reached.
- **Duke** Power and Division of Radiation Protection will provide technical advice and assistance to the state and counties.

3.b – Implementation of KI Decision:

Criterion 3.b.1:

KI and appropriate instructions are available ~~should~~ a decision to recommend Use of KI be made. Appropriate record keeping of the administration of KI for emergency workers and institutionalized individuals (not the general Public) is maintained.
(NUREG-0654, E.7., J.10. e, f.)

EXTENT OF PLAY:

- Participants: State of NC, Mecklenburg & Gaston Counties
- Demonstration of KI will be through "Discussion Only" at State and County **EOCs**.
- KI is only distributed to emergency workers and institutionalized individuals inside the ten mile EPZ and is not distributed to the general public in North Carolina.
- Decision to take KI will be made by the State Health Director in consultation with the State Pharmacist and County Health Directors.
- Turn back values for field operations will be 5R
- State and county personnel inside the ten-mile EPZ will be provided the following equipment: 0-200 mR Self Reading Dosimetry, 20 R SRD, simulated TLDs and individual dose cards.
- State and county personnel outside the ten-mile EPZ will be provided the **following** equipment: 0-200 mR ~~Self~~ Reading Dosimetry, simulated TLDs and individual dose cards.

3.c – implementation of Protective Actions for Special Populations.

Criterion 3.c.1:

Protective action decisions are implemented for special population groups within areas subject to protective actions.
(NUREG-0854, E.7., J.9., 10.c.d.e.g.)

EXTENT OF PLAY:

- **Participants:** Mecklenburg & Gaston Counties
- A current list of Special Needs Populations **will** be provided to the Federal Evaluator.
- Evacuation/Relocation requirements will be demonstrated through discussions at the **EOC**, based on the scenario and county implementation procedures.
- Contact via telephone with special population groups for PADs and transportation resources will be simulated.
- Private schools will not be participating in the exercise; however a phone call can be made to a **school** if requested by an evaluator.

Criterion 3.c.2:

OROs/School officials decide upon and implement protective actions for schools.
(NUREG-0654, J.10.c., d., g.)

EXTENT OF PLAY:

- Participants: Mecklenburg & Gaston Counties
- School evacuation procedures and interviews will be demonstrated via discussion with key school staff members at the following locations:
- Law enforcement agencies will discuss convoy escort procedures during the Traffic and Access Control interviews.

Mecklenburg:

Kennedy Middle School
4000 Gallant Lane
Charlotte, NC

Steele Creek Elementary School
4100 Gallant Lane
Charlotte, NC

Date & Time: Off-scenario, Monday, March 25, 2002 at 2:00 p.m. at the schools.

Gaston:

- Demonstration for Forestview High School will take place at Gaston County EOC.

Forestview High School
5545 Union Road
Gastonia, NC

Date & Time: On-scenario, Tuesday, March 26, 2002 at 10:00 a.m.

3.d – Implementation of Traffic and Access Control.

Criterion 3.d.I:

Appropriate traffic and access control is established. Accurate instructions are provided to traffic and access control personnel.
(NUREG-0654, J.10.g., j, k.)

EXTENT OF PLAY:

- Participants: Mecklenburg, Gaston, Cleveland & Union Counties.
- Traffic control points will be discussed with the Federal Evaluator at each County EOC. Sheriff/police will discuss proper procedures, equipment and turn back values.
- At least one representative will be available from each agency assigned traffic control responsibilities.

- If a Federal Evaluator would like to see a TCP/SRB demonstrated, one will be selected from the plan and the appropriate agency will take him to the field location to demonstrate the criterion.
- When State is in direction & control the **SERT** Leader will determine appropriate access control measures to restrict access to contaminated areas.

Mecklenburg:

- Representatives available for interview include: State Highway Patrol, Charlotte/Mecklenburg Police Department and Pineville Police Department

Time: On-scenario at 10:00 a.m.

Gaston:

- Representatives available for interview include: NC State Highway Patrol, Gaston County Police Department, Mount Holly Police Department & Belmont Police Department.

Time: On-scenario at 10:00 a.m.

Cleveland:

- A representative from Kings Mountain PD will be available for interview at:

Kings Mountain Police Department
112 S. Piedmont Avenue
Kings Mountain, NC

Date & Time: Off-scenario. Tuesday, March 26, 2001 at 1:00 p.m.

Union:

- A representative from Union County Sheriff's Office or the State Highway Patrol will be available for interview at:

Weddington High School
4902 Monroe-Weddington Road
Matthews, NC

Date & Time: Off-scenario, Monday, March 25, 2002 at 8:00 p.m.

Criterion 3.d.2:

Impediments to evacuation are Identified and Resolved
(NUREG-0654, J. 10., j., k.)

EXTENT OF PLAY:

- **Participants:** State of NC, Mecklenburg, Gaston, Cleveland & Union Counties.
- Officers during the interview process will identify impediments to evacuation based on a simulated set of circumstances and questions posed by the federal evaluator.

FIELD MEASUREMENT AND ANALYSIS

4.a – Plume Phase Field Measurement & Analysis

Criterion 4.a.1 :

The field **teams** are equipped to perform field **measurements of direct** radiation exposure (**cloud and** ground shine] and to sample airborne radioiodine **and particulates**. (NUREG-0654, H. 10, I.8., 9., 11.)

EXTENT OF PLAY:

- **Participants:** State of NC.
- North Carolina Division of Radiation Protection will demonstrate this criterion using **two** field teams. Field activities will **be demonstrated for "Training Only"** and not for evaluation. **it will** be demonstrated on scenario as part of the "FEMA/State Technical Assistance Program."
- Radiation Protection's mobile laboratory and **other field activities** will be conducted from the NC National **Guard** Facility at **Douglas International Airport** in Charlotte, NC

Date and **Time:** On-scenario at 9:00 a.m.

Criterion 4.a.2:

Field teams are **managed to** obtain **sufficient** information to **help** characterize the **release** and **to control** radiation **exposure**. (NUREG-0654, I.8., 11., J. 10.a).

EXTENT OF PLAY

- **Participants:** State of NC.
- North Carolina Division of Radiation Protection will demonstrate this criterion using **two** field teams. Field activities will be demonstrated for **"Training Only"** and not for evaluation. **It will be** demonstrated on scenario as part of the "FEMA/State Technical Assistance Program."
- Radiation Protection's mobile **laboratory** and other field activities will be conducted from the NC National **Guard** Facility at **Douglas International Airport** in Charlotte, NC

Date & Time: On-scenario at 9:00 a.m

Criterion 4.a.3:
 Ambient radiation measurements are made and recorded at appropriate locations, and radioiodine and particulate samples are collected. Teams must move to an appropriate low background location to determine whether any significant (as specified in the plan and/or procedures) amount of radioactivity has been collected on the sampling media.
 (NUREG-0654, 1.8, 9, 11.)

EXTENT OF PLAY:

- **Participants:** State of NC.

- Division of Radiation Protection field activities will be demonstrated for "Training Only" and not for evaluation. It will be demonstrated on scenario as part of the "FEMA/State Technical Assistance Program."

- Radiation Protection's mobile laboratory and other field activities will be conducted from the NC National Guard Facility at Douglas International Airport in Charlotte, NC

Date & Time: On Scenario at 9:00 a.m.

EMERGENCY NOTIFICATION AND PUBLIC INFORMATION

5.a – Activation of the Prompt Alert and Notification System:

Criterion 5.a.1:

Activities associated with primary alerting and notification of the public are completed in a timely manner following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. The initial instructional message to the public must include: (1) identification of the State or local government organization and the official with the authority for providing the alert signal and instructional message; (2) identification of the commercial nuclear power plant and a statement that an emergency situation exists at the plant; (3) reference to RFP-specific emergency information (e.g., brochures and information in telephone books) for use by the general public during an emergency; and (4) a closing statement asking the affected and potentially affected population to stay tuned for additional information.
 (NUREG 10 CFR Part 50, Appendix E & NUREG-0654, E.1.4,5,6,7)

EXTENT OF PLAY:

- **Participants:** State of NC, Mecklenburg & Gaston Counties.

- At Site Area Emergency North Carolina's counties will be in Direction and Control. Following the sounding of the sirens and the first PAD recommendations to the public, Mecklenburg County, as "Lead County" will request the State to take direction and control.
- South Carolina will be the "Lead Agency", and will coordinate and conduct the countdown for activating sirens. An actual silent test will be conducted to simulate the sounding of sirens.

- PAD messages and news releases will be coordinated by the states and counties via the Decision Line.

Criterion 5.a.3:

Activities associated with FEMA approved **exception areas** (where applicable) are **completed within 45 minutes** following the **initial** decision by authorized **offsite** emergency **officials** to notify the **public of** an emergency situation. Backup alert **and** notification of the public is completed within 45 **minutes** following the detection **by** the **ORO** of a failure **of** the primary **alert** and notification system.
(NUREG-065-1, E.6., Appendix 3.B.2.c.)

EXTENT OF PLAY:

- Participants: Mecklenburg & Gaston Counties.
- An actual silent test will be conducted and sounding of the sirens simulated. A feedback sheet will show if a siren has failed and if backup route alerting around the failed **siren** would be necessary.
- If a siren has failed, back-up alerting will be discussed with ~~the~~ Federal Evaluator for a pre-determined zone (siren failure simulated).
Mecklenburg:
- **Back-up** route alert and notification will ~~be~~ demonstrated by the ~~Charlotte/~~Mecklenburg Fire Marshall Fire at the Mecklenburg County EOC.

Date and Time: On-Scenario. Tuesday, March 26, 2002 at 11:00 a.m.

Gaston:

- Back-up route alert and notification will be demonstrated by Union Road Volunteer Fire Department at the Gaston County EOC.

Date and Time: On-Scenario, Tuesday, March 26, 2002 at 11:00 a.m.

5.b - Emergency Information and Instructions for ~~the~~ **Public** and the Media

Criterion 5.b.1:

OROs provide accurate emergency information **and** instructions to the public **and** the news media in a timely manner.
(NUREG-0654, E.5., 7., G.3.a., G.4.a., b., c.)

EXTENT OF PLAY:

- Participants: State of NC, Mecklenburg & Gaston Counties
- PIOs will receive rumor ~~control~~ calls at the JIC once it is activated. Approximately six calls per hour will be made to each state and county PIO represented at the JIC.
- Two rumors will be identified as well as ~~any~~ trends and appropriate actions taken to **address** them.

6. SUPPORT OPERATION/FACILITIES

6.a - Monitoring and Decontamination of Evacuees and Emergency Workers and Registration of Evacuees

Criterion 6.a.I:

The reception center/emergency worker facility has appropriate space, adequate resources, and trained personnel to provide monitoring, decontamination, and registration of evacuees and/or emergency workers.
(NUREG-0654, J.10.h; K.5.b.)

EXTENT OF PLAY:

- Participants: Gaston, Cleveland & Union Counties.
- Mecklenburg County will not demonstrate this criterion. The County has only one facility to demonstrate and it was done during the 2002 McGuire exercise (August 2001). Carolina Medical Center will participate on a regular exercise schedule following the 2002 exercise.

Gaston:

Gastonia Hazmat Team will demonstrate at:
Mount Holly Middle School
124 South Hawthorne Street
Mount Holly, NC

Date & Time: Off-scenario, Monday, March 25, 2002 at 6:00 p.m

Cleveland:

Cleveland County Hazmat Team, Oak Grove VFD, Kings Mountain Fire Department, and Bethlehem Fire Department will demonstrate at:
Kings Mountain High School
500 Phifer Road
Kings Mountain, NC

Date & Time: Off-scenario, Tuesday, March 26, 2002 at 3:00 p.m

Union:

Wesley Chapel VFD, as well as representatives from other fire stations, will demonstrate at:

Weddington High School
4901 Monroe-Weddington Road
Matthews, NC

Date & Time: Off-scenario, Monday, March 25, 2002 at 7:00 p.m

6.b -- Monitoring and Decontamination of Emergency Worker Equipment:

criterion 6.b.1:

The facility/ORO has adequate procedures and resources for the accomplishment of monitoring and decontamination of emergency worker equipment including vehicles.
(NUREG-8654, K.5.b.)

EXTENT ~~OF~~ PLAY:

- Participants: Mecklenburg, & Gaston Counties
- Two vehicles will be monitored and one vehicle ~~decontaminated~~ using water
- Monitoring and decontamination of emergency workers will be demonstrated by the following agencies at the indicated locations.

Mecklenburg:

Charlotte Fire Department will demonstrate at:

Fire Station 24
7132 Pineville-Matthews Road
Charlotte, NC

Date & Time: Off-scenario, ~~Wednesday~~, March 27, 2082 at 9:00 a.m

Gaston:

~~Lowell~~ Volunteer Fire Department will demonstrate at:

Lowell Volunteer Fire Department
202 Groves Street
Lowell, NC

Date and Time: Off-scenario, Tuesday, March 26, 2002 at 6:00 p.m.

6.c Temporary Care of Evacuees:

Criterion 6.c.1:

Managers of congregate care facilities demonstrate that the centers have resources to provide services and accommodations consistent with American Red Cross planning guidelines. Managers demonstrate the procedures to assure that evacuees have been monitored for contamination and have been decontaminated as appropriate prior to entering congregate care facilities.

(NUREG-0654, J. 10.h., 12.)

EXTENT OF PLAY

- **Participants: Gaston, Cleveland & Union Counties.**
- Mecklenburg County will not demonstrate this criterion. The County has only one facility to demonstrate and it was done during the 2001 McGuire exercise (August 2001).

Gaston:

American Red Cross will demonstrate at:

Mount Holly Middle School
124 South Hawthorne Street
Mount Holly, NC

Date and Time: Off-scenario, Monday, March 25, 2002 at 6:00 p.m.

Cleveland:

American Red Cross will demonstrate at:

Kings Mountain High School
500 Phifer Road
Kings Mountain, NC

Date and Time: Off-scenario, Tuesday, March 26, 2002 at 3:00 p.m.

Union:

American Red Cross will demonstrate at:

Weddington High School
4901 Monroe-Weddington Road
Matthews, NC

Date and Time: Off-Scenario. Monday, March 25, 2002 at 7:00 p.m.

6.d – Transportation and Treatment of Contaminated Injured Individuals:

Criterion 6.d.1:

The facility/ORO has the appropriate space, adequate resources, and trained personnel to provide transport, monitoring, decontamination, and medical services to contaminated injured individuals. (MUREG-0654, F.2., H.10., K.5.a.,b., L.1.,4.)

EXTENT OF PLAY:

- **Mecklenburg County will *not* demonstrate this criterion during the 2002 Catawba Exercise. The County *has* only one facility to demonstrate and *it* was exercised during the 2001 McGuire exercise [August 2001].**

CATAWBA NUCLEAR STATION
ANNUAL EXERCISE SCENARIO
MARCH 26, 2002
NARRATIVE

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 and evaluators. The on-site and off-site News Media Centers and Joint Information Center will be manned. The States (North Carolina and South Carolina) and Counties (York, Gaston, Mecklenburg) are participating in this exercise.

The States have dictated when they need each classification to occur, thus the following plant casualties were developed to accomplish their objectives:

The Exercise begins at 0745 when an Operator near the Doghouse calls the Control Room about a steam explosion. The Steam Explosion occurs in the Interior Doghouse near "C" SG PORV (steam generator power operated relief valve). The damage causes the PORV to be blown full open, i.e., 2.5% total steam flow. The PORV Block valve is also jammed open. The "C" steam line PORV valve is blown off and fell into the yard outside of the Doghouse. The doghouses are rooms near the Reactor Building that houses main steam line relief valves.

The Fire Brigade Leader is dispatched to the reported explosion in the Unit 1 Interior Doghouse. Upon arriving, they discover no fire involved and what appears to be only plant structural damage. There are no injuries resulting from the steam explosion. The area is filled with smoke and dust from the steam explosion. There is a large steam leak in the upper Doghouse area.

- | | |
|------|--|
| 0755 | Unit 1 plant shutdown will be in progress, at a maximum rate of 20%/hr. |
| 0800 | Declare "Alert" (EAL 4.6.A.1-1), Explosion in Protected Area fence affecting safe operation of the unit. The States and Counties are notified via ENF selective signal telephone. The ERO is activated and by 0830 the TSC and OSC should be activated (or operational). Also, by 0845 the EOF should be activated (or operational). |
| 0900 | A medical injury occurs to a CNS employee while trying to check a vehicle at the site security gate. A vehicle side swipes and runs over the foot of a Security Officer. The individual will not be transported to Piedmont Medical Hospital (PMC), only simulated. |

- 0943 A SG 'C' tube leak of 75 gpm occurs and is going out the "C" SG PORV which, is full open. (This the first place in the scenario that a reactor coolant release occurs to the atmosphere)
- 1000 Site Area Emergency (SAE) Declared - EAL 4.4 .S.3, "S/G tube leak "Loss two barriers" (Reactor Coolant system and Containment) The EPZ Counties will SIMULATE sounding the sirens and activating the EBS.
- 1030 The Reactor Coolant Pump "B" (NCP "B") High-High Vibration causes loose parts (some small impeller parts or shavings break loose from rubbing casing) to be put into the Reactor Coolant System. Greater than >5% fuel damage occurs mechanically. If it has not already happened the plant will require an operator "Reactor Trip and Safety Injection". Containment Radiation Monitors EMF53A and 53B are increasing which indicate suspected mechanical fuel damage.
- 1045 SG "C" tube leak increases to a rupture of 600 gpm - Fuel damage shows up as >117 R/hr on EMF53A and EMF53B in the containment.
- 1100 Declare a General Emergency based on EAL 4.1.G.1, loss of 3 Fission Product Barriers.
- A. loss Fuel Cladding - EMF53A or 53B >117 R/hr
- B. Loss Reactor Coolant System - Ruptured and Faulted.
- C. Loss of Containment Barrier - Open PORV and Block valve on ruptured SG
- Simulate sounding the EPZ Sirens and EBS again at the GE. The Field Monitoring teams (FMT) dose readings will indicate fuel damage and the plume contains iodine. The Protective Action Guides (PAG) recommended by the States will likely be too evacuate five miles around based on plant conditions. (The CNS 'GE' procedure RP/0/A/5000/001 as a minimum recommends evacuating two miles around and five miles downwind.)
- Unit 1 Plant cooldown in progress in order to equalize Reactor Coolant System pressure with Steam Generator pressure to stop the release.
- 1300 Terminate Exercise at 1300 or before if States and Counties complete objectives.

SEQUENCE OF EVENTS

<u>Time</u>	
00730	Controllers and Operations players on station
0730	Simulator out of freeze Players walk down boards
0745	Steam Explosion in Interior Doghouse near "C" SG PORV. (Causes PORV to be blown full open, i.e., 2.5% total steam flow). Block valve is also jammed open. (PORV valve in yard) Operator near Doghouse calls CR about the explosion. Fire Brigade Leader Response MEWT Response Potentially Security Response as Per procedure
0755	Plant shutdown in progress, maximum rate 20%/hr.
0800	Declare "Alert" (EAL 4.6.A.1-1), Explosion in Protected Area fence affecting safe operation of the unit) Conduct Site Assembly, activate TSC, OSC, EOF, and JIC <u>Expected Response</u> Operators and/or ERO should implement the following procedures: RP/0/A/5000/001 Classification of Events RP/0/A/5000/003 Alert RP/0/A/5000/006 Notification to States and Counties RP/0/A/5000/010 Conducting a Site Assembly or Evacuation RP/0/A/5000/013 NRC Notification Requirements RP/0/A/5000/009 Collision/Explosion RP/0/A/5000/020 Technical Support Center Emergency Coordinator Procedure SR/0/B/2000/003 Emergency Operations Facility Director Procedure
0830	TSC and OSC activated (or operational)

0845 EOF Activated (*or* operational)

0900 A medical injury occurs to the employee while trying to check a cars at the ~~site~~ gate.
(A vehicle side swipes and runs over the foot of a Security Officer)

0945 SG "C" tube ~~leak~~ 75 gpm (going out "C" SG PORV full open)

Expected Response

- EMF33 and EMF72, 73 alarms
- Operators perform AP-10
- 1EMF28 on SG "C" higher readings
- Operators may request SG samples

0955 Simulate Transport Medical Injury to PMC

1000 SAE Declared- EAL 4.1.S.3, "S/G tube leak "~~hos~~two barriers"
(NC and Containment)

Expected Response

ERO should implement the following procedures:

RP/0/A/5000/004 Site Area Emergency

Simulate sound sirens and activate EBS

1030 NCP "B" High High Vibration causing loose parts = >5% fuel damage mechanically. (~~some~~ small impeller parts ~~or~~ shavings break loose from subbing casing)

If *not already* plant will require operator "Rx trig and safety injection"

Rx vessel ~~loose~~ parts alarm

EMF53A and 53B increasing

Suspected~~fuel~~ damage (mechanical)

1045 SG "C" tube ~~leak~~ increases to a rupture 600 gpm - Rx trip and manual/auto safety injection

Fuel damage shows up >147 Whr on EMF53A and EMF538

1100 Declare General Emergency, EAL 4.1.G.1), Loss of 3 F P barriers

 A. **Loss** Fuel Cladding - EMF53A or 53B >117 R/hr

 B. ~~loss~~ **NC** System - Ruptured and Faulted.

 C. **Loss** of Containment barrier - Open **PORV** on rupture SG

Expected Response

 ERO should implement the following procedures:

 RP/0/A/5000/005 General Emergency

 RP/0/A/5000/015 Core **Damage** Assessment

 HP/0/B/1009/019 Off-Site Dose Projections

1100 Simulate sirens and EBS

 FMT dose readings indicate fuel damage (plume contains iodine).

 PAG - Evacuate to ~~five~~ miles based ~~on~~ plant conditions (GE procedure RP/0/A/5000/001 evacuates ~~two~~ miles around and five miles downwind)

1100-1380 Plant cooldown in progress - Equalize **NC** System with steam pressure

1300 Terminate Exercise **after** all objectives met

 Conduct Player Critique **in** EOF and TSC

APPENDIX 4

EXERCISE SCENARIO

This appendix contains a summary of the simulated sequence of events, Exercise Scenario, which was used as the basis for invoking emergency response actions by OROs in the Catawba Nuclear Station exercise on March 26, 2002. This scenario was submitted by the States of South Carolina, North Carolina, Duke Power Company and Carolina Power and Light Company and was approved by FEMA Region IV.

**Extent of Play Agreement
Catawba Nuclear Station Exercise
March 25-27, 2002**

All selected exercise evaluation areas will be demonstrated in accordance with respective plans and FEMA criterion. Exceptions are noted below.

1. Emergency Operations Management.

1.a. Mobilization

(Criterion 1.a.1) All state and local government personnel will be pre-positioned. Alert rosters will be provided to FEMA evaluators and a discussion of call-down procedures will be conducted.

1.c. Direction and Control

(Criterion 1.c.1) Direction and Control will take place at the State Emergency Operations Center (SEOC) and the York County Emergency Operations Center (EOC) Rock Hill, SC. State participants include the Emergency Preparedness Division (EPD), the Department of Health and Environmental Control, Bureau of Land Waste Management, and the Department of Social Services. A simulation cell will represent the remainder of the State Emergency Response Team (SERT).

1.e. Equipment and Supplies

(Criterion 1.e.1) Potassium Iodide for emergency workers will be simulated by candy or ~~other~~ means (empty envelop marked KI). A 14-day supply of KI for 7000 Emergency Workers and Institutionalized Individuals is stored at FNF County EOCs, and Health Departments and at DHEC headquarters in Columbia, SC. Advance rosters of emergency workers are not maintained. KI is not stockpiled for members of the general public.

2. Protective Action Decision Making.

2a. Emergency Worker Exposure Control

(Criterion 2.a.1.) Dose limits for emergency workers are pre-determined. Emergency workers may voluntarily exceed dose limits only after being fully informed by DHEC of the biological effects of radiation and possible consequences of excessive exposure.

(Criterion 2 b 1.) Protective action recommendations by DHEC will be based on an evaluation of information received from the licensee, independent dose assessments and simulated field monitoring data input.

(Criterion 2.b.2.) The Governor or his designee will demonstrate the ability to make appropriate protective action decisions (PADs) based on recommendations from BHEC. PADs that require sheltering or evacuation of residents or transients in the 10-mile EPZ will be coordinated with the Chief County Elected Official or designee.

2.d. RAD Assessment PAD-Ingestion Exposure Pathway. This Evaluation Area will not be demonstrated.

2.e. RAD Assessment PAD Relocation, Re-Entry and Return. This Evaluation Area will not be demonstrated.

3. Protective Action Implementation.

3.a. Emergency Worker Exposure Control

(Criterion 3.a.1.) Emergency Workers or Emergency Worker Teams will use direct reading and simulated Permanent Record Dosimeters (PRDs) to monitor and control their radiation exposure. Dosimetry will be pre-positioned. Emergency workers in low exposure rate areas will use PRDs and may use direct reading dosimeters or place them in centralized areas.

3.b. Implementation of KI Decision.

(Criterion 3.b.1.) KI is distributed to Emergency Workers prior to their being dispatched. KI is taken by Emergency Workers on order by the State Health Officer or designee.

3.c. PAD Implementation-Special Populations.

(Criterion 3.c.1.) York County will demonstrate the ability and resources to implement appropriate protective actions for special population groups. A list of people with special transportation needs will be provided to evaluators. Evacuation assistance will be simulated.

(Criterion 3.c.2) York County will simulate school evacuations by out-of-sequence interviews with key school staff members on **March 27, 2002**. Evaluators will meet with escorts at the York County EOC, at **8:00 A.M.** The following schools will be evaluated:

Bethel Elementary	Applied Tech. Center	York Road Elementary
Clover High	Mt. Gallant Elementary	York High/FDJTC
Fort Mill High	Northwestern High	York Junior High
Fort Mill Middle	Rosewood Elementary	

3.d. Traffic and Access Control.

(Criterion 3.d.1.) Traffic and Access Control Points are pre-determined. Traffic Control Point Three (SC 274 and Campbell Road) and Traffic Control Point 4 (SC 274 and Alison Creek Church Road) will be demonstrated at 8:00 A.M., on-scene. State Access Control Point to Lake Wiley (Nivens Creek Public Boat Landing) will be demonstrated at 9:30, on-scene. Evaluator will meet escort at 7:30 A.M. at the York County EQC.

(Criterion 3.d.2.) Actions to identify and remove impediments to evacuation will be demonstrated by discussion with officers manning TCPs.

3.e. Implementation of Ingestion Pathway Decisions. This Evaluation Area will not be demonstrated.

3.f. Relocation Re-Entry and Return Implementation. This Evaluation Area will not be demonstrated.

4. Field Measurement and Analysis.

4.a. Plume Phase Field Measurements and Analyses. This evaluation area will not be demonstrated. Teams will be in the field for training purposes only.

4.b. Post Plume Phase Field Measurements and Sampling. This Evaluation Area will not be demonstrated.

4.c. Laboratory Operations. This evaluation area will not be demonstrated.

5. Emergency Notification and Public information.

5.a. Activation of the Prompt Notification System. (PNS)

(Criterion 5.a.1.) The State will coordinate Protective Action Decisions (PAD) with York County, SC; Gaston and Mecklenburg Counties, NC. At Site Area Emergency, the State will coordinate a silent test of the siren system surrounding Catawba Nuclear Station (CNS). A print out of the silent test results will be provided to the FEMA evaluator. A pre-scripted "Stay Tuned" EAS message and follow-on news release will be transmitted from the state Emergency Operations Center (SEOC) to the Local Primary (LP-1) EAS station. A "test" ~~EAS~~ message will be broadcast. At General Emergency, The PAD will be coordinated with York County, SC; Gaston and Mecklenburg Counties, NC. An appropriate EAS message will be transmitted to the LP-1 station. The LP-1 station will have staff available for interview during the demonstration.

(Criterion 5.a.2.) Fast Breaking Scenario. This Evaluation Area will not be demonstrated.

(Criterion 5.a.3.) FEMA Approved Exception Areas. This Evaluation Area will not be demonstrated.

5.b. Emergency Information and Instructions for the Public and the Media.

(Criterion) 5.b.1.) The State and York County will demonstrate the ability to coordinate the formulation and dissemination of accurate information and instructions to the news media at the Joint Information Center (JIC). Rumor control for the State and York County will be demonstrated at the JIC. Rumor control personnel will provide a log of rumor calls to the FEMA Evaluator.

6. Support Operations/ Facilities.

6.a. Monitoring /Decontamination of Evacuees and Emergency Workers. Registration of Evacuees.

(Criterion 6.a.1.) Host county Reception Centers will be demonstrated out-of-sequence. At least six people will be monitored and registered. Personnel decontamination will be demonstrated via walk-through and discussion. A monitoring productivity rate will not be developed or demonstrated. State and local plans require the monitoring of evacuees only when there has been an actual release. Once the determination has been made to initiate evacuee monitoring, OROs are prepared to monitor 100% of the evacuated population who may have been exposed to radiation as rapidly as possible. At least two vehicles will be monitored and one vehicle decontaminated in accordance with local SOPs. Water will be used to simulate vehicle decontamination procedures. Reception Centers to be evaluated are:

Cherokee:	Gaffney High School at 10:00 A.M.
Chester:	Lewisville High School at 5:00 P.M.
Lancaster:	Lancaster High School at 5:00 P.M.
Union:	Union High School at 2:00 P.M.

York County will demonstrate Emergency Worker Monitoring and Decontamination out-of-sequence at 6:30 P.M., March 25, 2002, at the Bethany Fire Department. Evaluators will meet at the York County EOC at 5:45 P.M. Two individuals will be monitored. Personnel decontamination will be demonstrated by discussion and walk-through. The Emergency Worker Monitoring and Decontamination station to be evaluated is: Bethany Santiago Fire Department.

6.b Monitoring and Decontamination of Emergency Worker Equipment.

(Criterion 6.b.1) Two vehicles will be monitored and one vehicle will be decontaminated. Water will be used to simulate vehicle decontamination procedures. York County will demonstrate this Evaluation Area concurrently with 6.a., above

6.c. Temporary Care of Evacuees.

(Criterion 6.c.1.) Host County Shelters will be demonstrated out-of-sequence and concurrently with Evaluation Area 6.a, above. Procedures that assure that only nsn-contaminated persons enter shelters will be demonstrated. Shelters to be evaluated are:

Cherokee:	Gaffney High School
Chester:	Lewisville High School
bancaster:	bancaster High School
Union:	Union High School

6.d. Transportation and Treatment of Contaminated injured Individuals.

(Criterion 6.d.1.) York county conducted an out-of-sequence **MS-1** Hospital drill with Piedmont Medical Center on September 27, 2001.

APPENDIX 5

LISTING OF YOWK COUNTY SCHOOLS EVALUATED ON MARCH 27, 2002

Bethel Elementary School

York Junior High School

York High/Floyd D. Johnson School

Northwestern High School

Applied Technology Center

York Road Elementary School

Clover High School

Orchard Park Elementary School

Fort Mill Middle School

Fort Mill **High** School

Mt. Gallant Elementary School

Rosewood Elementary School

Springfield Elementary **School**