



Final Exercise Report

Shearon Harris Nuclear Power Plant

Licensee: **Progress Energy**

Exercise Date: **March 4, 2003**

Report Date: **May 28, 2003**

**FEDERAL EMERGENCY MANAGEMENT AGENCY
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I. EXECUTIVE SUMMARY

On March 4, 2003, a **partial** participation exercise was conducted in the plume exposure pathway emergency planning zone (EPZ) around the Shearon Harris Nuclear Power Plant by the Federal Emergency Management Agency (FEMA), Region IV. The purpose of the exercise was to assess the level of State and local preparedness in responding to a radiological emergency. This exercise was held in accordance with **FEMA's** policies and guidance concerning the exercise of State and local radiological emergency response plans (RERP) and procedures.

The previous exercise at this site was conducted on April 24, 2001. The qualifying emergency preparedness exercise was conducted on February 28, 1987.

FEMA wishes to acknowledge the efforts of the many individuals who participated in this exercise. The State of North Carolina and the **Risk** Counties of Chatham, Harnett, Lee and Wake participated in the Shearon **Harris** exercise. Protecting the public's health and safety **is** the **full-time** job of some **of** the exercise participants and assigned responsibility of **others**. Still others have sought this responsibility by volunteering to provide vital emergency services to their communities. The work of volunteers enhanced the communities' responses to the emergency and FEMA wishes **to** make special note of their contribution to the success of **this** exercise and their commitment **to** protect the health and safety of the public in their communities.

Many of the demonstrations for field activities, such **as**: School relocation; back-up route alerting; **lake** warning; reception centers; congregate care centers and emergency worker and vehicle decontamination stations were evaluated during the week **of** February 10th, 2003.

Chatham, Hamett, Lee and **Wake** Counties and the State of North Carolina worked diligently in response to the simulated incident at the plant. Cooperation and teamwork was evident at **all** locations. No Deficiencies or **Areas** Requiring Corrective Action were identified. The ARCA concerning the lack of **an** effective linkage between the **EAS** message **and** follow-on message identified during the 2002 **Brunswick** Nuclear Power Plant exercise was corrected during the March 4, 2003 Shearon **Harris** exercise.

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 Rule 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 (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 Agriculture,
 - Department of Commerce,
 - Department of Energy,
 - Department of Health and Human Services,
 - Department of the Interior,
 - Department of Transportation,
 - Environmental Protection Agency,
 - Food and Drug Administration, and
 - Nuclear Regulatory Commission.

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 Shearon Harris Nuclear Power Plant to FEMA Region IV by the State of North Carolina and involved local jurisdictions occurred on March 28, 1988. Formal approval of the RERP was granted by FEMA on April 29, 1989, under 44 CFR 350.

A partial participation plume exposure pathway exercise was conducted on March 4, 2003, 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 Shearon Harris Nuclear Power Plant. The purpose of this exercise report is to present the exercise results and findings on the performance of the offsite response organizations (ORO) during 3 simulated radiological emergency.

The findings presented are based on the evaluations of the Federal Evaluator team, with final determinations made by the FEMA Region IV Chief Evaluator and 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. 1, "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," April 25, 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 all 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: (1) descriptions of all Deficiencies and ARCAs assessed during this exercise, recommended corrective actions, and the State and local governments' schedule of corrective actions for each identified exercise issue and (2) descriptions of unresolved ARCAs assessed during previous exercises and the status of the ORO's efforts to resolve them.

III. EXERCISE OVERVIEW

Contained in this section are data and basic information relevant to the March 4, 2003 exercise to test the offsite emergency response capabilities in the area surrounding the Shearon Harris Nuclear Power Plant. Field activities were demonstrated during the week of February 10th, 2003. These activities included demonstrations in Chatham, Harnett, Lee and Wake counties of protective actions for schools; lake warning; back-up route alerting; reception and congregate care centers; and emergency worker and vehicle decontamination.

A. Plume Emergency Planning Zone Description

The Shearon Harris Nuclear Power Plant, operated by Progress Energy, is located in the Southwest corner of Wake County, approximately 16 miles southwest of Raleigh, North Carolina. The 10-mile EPZ encompasses portions of Wake, Chatham, Harnett and Lee Counties. Approximately 29,185 people live within the 10-mile EPZ. The primary land use around the plant is agricultural with some light manufacturing. The Jordan Lake and Harris Lake recreational areas fall within the 10-mile EPZ. U. S. Highways 1, 64 and 401 with NC 42, 55 and 751 comprise the major road transportation arteries, along with rail lines controlled by Norfolk & Southern (NS) and CSX railroads. The EPZ is sub-divided into 14 protective action zones.

B. Exercise Participants

The following agencies, organizations, and units of government participated in the Shearon Harris Nuclear Power Plant exercise on March 4, 2003.

STATE OF NORTH CAROLINA

Department of Crime Control and
Public Safety, Division of Emergency Management (DEM)
Department of Environment, Health and Natural
Resources, Division of Radiation Protection (DRP)
Health and Human Resources
North Carolina State Highway Patrol
State Capitol Police
Wildlife Resources Commission

RISK JURISDICTIONS

Chatham County
Harnett County
Lee County
Wake county

FEDERAL

U. S. Army Corps of Engineers

PRIVATE/VOLUNTEER ORGANIZATIONS

American Red Cross
Amateur Radio Emergency Services
Angier/Black River Volunteer Fire Department
Bonelee Fire Department
Buies Creek Volunteer Fire Department
Cape Fear Rural Fire Department
Chatham County Chapter of the First Carolinas
Deep River Volunteer Fire Department
Moncure Volunteer Fire Department
North Chatham Volunteer Fire Department
Northview Fire Department
Northwest Harnett County Volunteer Fire Department
Pittsboro Volunteer Fire Department
Progress Energy
Siler City Fire Department
Silk Hope Volunteer Fire Department

C. Exercise Timeline

Table 1, on the following page, presents the time at which key events and activities occurred during the Shearon Harris Nuclear Power Plant exercise on March 4, 2003. Also included are times notifications were made to the participating jurisdictions/functional entities.

Table 1. Exercise Timeline

D. TE AND SITE: March 4, 2003 – Shearon Harris Nuclear Power Plant

Emergency Classification Level or Event	Time Utility Declared	Time That Notification Was Received or Action Was Taken						
		SEOC	JIC	DRP	CHATHAM COUNTY	HARNETT COUNTY	LEE COUNTY	WAKE COUNTY
Unusual Event	0837	0845		0845	0908		0905	0907
Alert	0924	0943	1045	0943	0940	0957	0945	0945
Site Area Emergency	1042	1052	1043	1048	1052	1100	1053	1055
General Emergency	1316	1329	1317	1322	1328	1338	1330	1329
Simulated Rad. Release Started	1034	1035	1107	1034	1042	1043	1055	1044
Simulated Rad. Release Terminated	1447		1438					
Facility Declared Operational		1043	1055	1040	1010	1005	1015	0950
Declaration of State of Emergency State Local		1210	1215		1210 1300	1225 1225		1330
Exercise Terminated	1448	1445	1450	1455	1450	1445	1440	1447
Early Precautionary Actions: Evacuation of schools Released schools Lake clearing Close Harris Park					1045 1115	1200		1124 1100 1100
1st Protective Action Decision: "Stay Tuned"		1111	1111	1111	1111	1111	1111	1111
1st Siren Activation		1117	1117	1117	1117	1117	1117	1117
1st EAS Message and NOAA: "Stay Tuned"		1127	1127	1127	1127	1127	1127	1127
2nd Protective Action Decision Evacuate Zones: A, B, C, D, H, I, J, K, L, M and N Shelter in place zones: E, F, G		1351	1351	1351	1351	1351	1351	1351
2nd Siren Activation		1355	1355	1355	1355	1355	1355	1355
2nd EAS Message and NOAA		1400	1400	1400	1400	1400	1402	1400
KI Administration Decision: Ingest for EWs & Institutionalized		1345		1342	1425	1407	1405	1411

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EV. 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 4, 2003 exercise to test the offsite emergency response capabilities of State and local governments in the 10-mile EPZ surrounding the Shearon Harris Nuclear Power Plant.

Each jurisdiction and functional entity was evaluated on the basis of its demonstration of criteria delineated in the Exercise Evaluation Methodology, April 2002. 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 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 Exercise Evaluation

DATE AND SITE: March 4, 2003 – Shearon Harris Nuclear Power Plant

ELEMENT/Sub-Element	STATE	DRP	JIC	EOF	CHATHAM COUNTY	HARNETT COUNTY	LEE COUNTY	WAKE COUNTY
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
1.c.1. Direction and Control	M	M			M	M	M	M
1.d.1. Communications Equipment	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
2.b.1. Rad Assessment & PARs & PADs Based on Available Info								M
2.b.2. Rad Assessment and PARs and PADs for the General Public	M	M			M	M	M	M
2.c.1. Protective Action Decisions for Special Populations					M	M	M	M
2.d.1. Rad 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
3.b.1. Implementation of KI Decisions				M	M	M	M	M
3.c.1. Implementation of PADs for Special Populations					M	M	M	M
3.c.2. Implementation of PADs for Schools					M			M
3.d.1. Implementation of Traffic and Access Control					M	M	M	M
3.d.2. Impediments to Evacuation and Traffic and Access Control					M	M	M	M
3.e.1. Implementation of Ingestion Decisions Using Adequate Info								
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								
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 INFO								
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) (Reserved)								
5.a.3. Activation of Prompt Alert and Notification Backup Alert and Notification					M	M	M	M
5.b.1. Emergency Info and Instructions for the Public and the Media	M		M		M	M	M	M
6. SUPPORT OPERATIONS/FACILITIES								
6.a.1. Monitoring and Decon of Evacuees and EWs and Registration of Evacuees					M	M	M	M
6.b.1. Monitoring and Decon of Emergency Worker Equipment					M	M	M	M
6.c.1. Temporary Care of Evacuees					M	M	M	M
6.d.1. Transport and Treatment of Contaminated Injured Individuals								

LEGEND: M = Met D = Deficiency A = ARCA

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 FITMA-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 ARCAs). 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 ARCAs 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.
- **Criterion Number** - A two-digit number corresponding to the criterion numbers in the Evaluation Area Methodology.
- **Issue Classification Identifier** - (**D** = Deficiency, **A** = **ARCA**) . Only Deficiencies and ARCAs **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 NORTH CAROLINA

1.1 State Emergency Operations Center

Key members of the State Emergency Response Team (SERT)) were pre-positioned. Communications staff explained the activation of the SERT. The State Emergency Operations Center (SEOC) was operational at 0930. At the beginning of the exercise the Selective Signaling System failed. Although backup system worked the Counties requested that the State take direction and control. The State assumed direction and control at 1043. The Director of the Division of Emergency Management and Director of Operations involved a competent and concerned staff in the formulation and implementation of evacuation and sheltering-in-place protective action decisions (PAD). The technical advisor, utility liaison, and Radiation Protection personnel provided valuable input into the SEOC operation.

- a. MET Criteria 1.a.1, 1.c.1, 1.d.1, 2.b.2, 5.a.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

1.2 Dose Assessment

Dose Assessment was performed successfully at the SEOC. The staff used both a State written dose projection program and a dose projection model supplied by the utility. No significant differences were identified between State and licensee dose projections. Field data was compared to projected doses and the protective action recommendations (PAR). Dose projections were discussed with the Director of Radiation Protection for use in developing PARS and coordination with the counties. The Radiation Protection SERT Coordinator effectively communicated with his staff and other organizations and coordinated field activities to keep emergency worker exposure as low as reasonably achievable. The ingestion of potassium iodide (KI) for emergency workers and institutionalized individuals was recommended after significant amounts of radioiodine were released. Dose assessment personnel were knowledgeable and used their procedures effectively.

- a. MET: Criteria 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.1, 2.b.2 and 4.a.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 Joint Information Center

The Joint Information Center (JIC) staff successfully demonstrated their policies and procedures. The JIC was activated in a timely manner and key county, state and utility personnel conducted the first of three news conferences within 35 minutes of activation. Continuous coordination with State and County Emergency Operations Centers (EOC) and the plant enabled the JIC staff to prepare and distribute vital information to the affected population. The information presented in news conferences was clear and detailed. In addition, 9 State and 12 utility news releases were prepared and released. Utility and state personnel staffed the Public Information Inquiry phone lines. They provided accurate responses to the public and identified trends that were resolved by the JIC staff.

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

Issue No.: 08-02-A-5.b.1-01

Description: The Supplemental News Release for Emergency Alert System (EAS) messages was not effectively linked to the initial EAS broadcast and was not necessarily broadcast by the EAS station. The EAS broadcast message originates from the SEOC but the supplemental news release (containing required emergency instructions) is created, released and distributed from the JIC. An early news release with evacuation zone descriptions was provided to the media for background information prior to the first EAS broadcast. It was not identified as

supplemental information to be used by the **EAS** station following an **EAS** message.

Corrective Action Demonstrated: The State Plan and JIC procedures call for emergency instructions to be transmitted immediately following the decision to activate the EAS. This vital supplemental information followed the activation of the sirens and issuance of EAS messages at the Site Area Emergency (**SAE**) and General Emergency (**GE**) Emergency Classification Levels (**ECL**). Additional emergency information messages that are not preceded by sirens provide follow-up information to the public (e.g., evacuation zones, closing of schools, protection of livestock, etc.).

During the exercise **EAS** supplemental information messages were provided **to** the broadcast stations within five minutes of the EAS message being broadcast. These messages met the established criteria regarding content: They contained

- Identification of the authority issuing the emergency message.
- Description of the accident.
- Included all new information.
- Clear identification of the audience.

Early in the evolution of the emergency, the State provided the public with a description of the emergency **zones**, evacuation routes and locations of reception centers. The message containing this information was clearly identified as “for information only” and specifically stated no evacuations had been ordered **and** the information was **being** provided for public awareness. The differences between emergency instructions and emergency information were emphasized during each media briefing. The practices followed in the release of emergency instruction and information messages that ensured the public was promptly informed.

f. PRIOR ARCAs - UNRESOLVED: NONE

1.4 Emergency Operations Facility

The Emergency Operations Facility (EOF), located on-site in the training complex, is an excellent facility from which all participating organizations can effectively manage emergency operations. Communications and coordination of State field monitoring team activities, the flow of technical information among State officials deployed to the EOF, and with the utility operator, were exemplary. State officials deployed to the EOF were well trained, knowledgeable and performed their responsibilities in an efficient and professional manner.

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

2. RISK JURISDICTIONS

2.1 CHATHAM COUNTY

2.1.1 Emergency Operations Center

The County Emergency Management Director provided excellent leadership and effective direction and control throughout the exercise. **Decision-making** was prompt and accurate. The County Manager and **his** assistant participated **in** the EOC operation. The EOC **staff**, including 911 personnel, were well trained and demonstrated their ability to respond to all events during the exercise. The Director gave several briefings **and** requested updates from agencies and organizations. The volunteers and EOC **staff** should be commended for their dedication and professionalism.

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

2.1.2 Protective Action for Schools

On February 12, 2003, an interview was conducted with the Moncure Elementary School Principal, Secretary and a bus driver. School personnel were knowledgeable of the evacuation plans and procedures and were very proactive in the execution of the plan. Each classroom has a copy of evacuation plans and procedures. Staff ride buses with students and front and rear escorting buses are equipped with radios.

- a. **MET:** Criteria 1.d.1, 3.a.1 and 3.c.2.
- h. **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 Traffic Control Points

Officers from the North Carolina State Highway Patrol (NCSHP) successfully demonstrated access and traffic control points (TCP) and emergency worker exposure control procedures through interviews at the EOC. They were extremely knowledgeable, motivated, and prepared for their responsibilities. The NCSHP Officers interviewed had appropriate dosimetry, KI, and record forms available for immediate use. Their vehicles contained everything necessary to establish TCPs. Removal of impediments to evacuation traffic was discussed in detail and the officers were knowledgeable of the steps to resolve problems.

- a. **MET:** Criteria 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

2.1.4 Emergency Worker Decontamination

The Pittsboro Fire Department and First Health of the Carolinas effectively demonstrated monitoring and decontamination of emergency workers and equipment. During monitoring of the vehicle, particular attention was given to the grill, wheel wells, tires, door handles, and bumpers. The decontamination wash down station was properly laid out for drainage and traffic flow. Signs provided procedural information. All personnel were trained and thoroughly knowledgeable of their duties and radiological exposure control.

- a. MET: Criteria 3.a.1, 6.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

2.1.5 Reception and Congregate Care

The reception and congregate care was set up at the Chatham Central High School. The Bonelee Fire Department provided staff for both the registration and monitoring of evacuees and vehicle monitoring and decontamination. The Siler City Fire Department assisted the Bonelee Fire Department at the wash down station. The American Red Cross (ARC) staffed the congregate care facility. All aspects of the operation were professionally accomplished by a dedicated, enthusiastic and well-trained staff:

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

2.1.6 Mobile Route Alerting

Two members of the Moncure Fire Department conducted backup alert and notification of the public. Individuals were briefed, issued dosimetry, KI and advised on the turn back value. The route was driven using the team concept of identifying street addresses, determining intervals to make public addresses, communicating with base operations at the fire department and taking periodic dosimeter readings. Individuals were very conscientious in alerting all homes along the route. Communication between the base of operations and team members was exceptional. The radio operator on the team had an excellent knowledge of radio procedures.

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

2.1.7 Lake Clearing

Lake Warning for Lake Jordan was demonstrated at the Crosswinds boat landing, which is open only to law enforcement personnel. The participating groups included the North Carolina Wildlife Resources Commission, Enforcement Division, the NC Parks and Recreation Division, Division of Forest Resources, and the U. S. Army Corps of Engineers. All were knowledgeable of their duties and dosimetry.

- a. MET: Criteria 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 ARCAs - RESOLVED: NONE**
- f. PRIOR ARCAs - UNRESOLVED: NONE**

2.2 HARNETT COUNTY

2.2.1 Emergency Operations Center

Staff at the EOC, both paid and volunteer, did a remarkable job of working together in a small EOC to provide for the safety of the Harnett County citizens. Despite difficulty with the selective signaling system and other phone system within the EOC, procedures were consistently followed. Everyone was knowledgeable of their roles and responsibilities, performed them well and should be commended for their professionalism.

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

2.2.2 Traffic Control Points

Representatives of the NCSHP and the Harnett County Sheriff's Department (HCSD) successfully demonstrated TCPs by interview. The NCSHP is responsible for TCPs with the HCSD and providing backup and security within the County. Both departments issue procedural packets that include detailed information pertaining to TCPs and radiological exposure control information. Each agency's representative understood their respective procedures, demonstrated knowledge of turn-back values and the use of dosimetry and KI.

- a. **MET: Criteria 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**

2.2.3 Emergency Worker Decontamination

Emergency worker and vehicle and equipment decontamination were professionally conducted on February 10, 2003 at the Angier/Black River Volunteer Fire Department (ABRVFD). The emergency worker and vehicle decontamination station was very well set up. Paper covered the walkway to the decontamination showers and all appropriate areas were roped off. The ABRVFD utilized their personnel, the fire station, parking and surrounding area to ensure the efficient flow of emergency equipment and personnel. This allowed for a quick return to service and the impoundment of vehicles that could not be decontaminated. Personnel were very knowledgeable of KI, dosimetry use, monitoring methods and appropriate decontamination techniques.

- a. **MET:** Criteria 3.a.1, 3.b.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

2.2.4 Reception and Congregate Care

Reception and congregate care activities were professionally demonstrated, out-of-sequence on February 11, 2003, at Harnett Central High School by Department of Social Services personnel, who were certified by the ARC. The Buies Creek Volunteer Fire Department effectively demonstrated the monitoring and decontamination of evacuees and their vehicles. Personnel procedures, facilities, and equipment were available to demonstrate effectively that the County is prepared to care for the evacuees at the reception and congregate care center. Evacuees and vehicles coming from the plume area were surveyed and decontaminated. Clean and contaminated evacuees were kept separate and were subsequently escorted to the congregate center where they were registered using ARC forms.

- a. **MET:** Criteria 3.a.1, 3.b.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**

2.2.5 Mobile Route Alerting

The Northwest Hamett County Volunteer Fire Department (NHVFD) conducted mobile route alerting on February **10,2003**. The thirty personnel present drove seven assigned routes, stopping every quarter mile to read the prescribed message. The routes were run within forty-five minutes. The route alerting was professionally demonstrated by staff who knew the routes. The fire personnel were familiar with KI, dosimetry use, and exposure limits. A coordinating group back at the firehouse, was in continuous communication with the men driving the routes. They recorded dosimetry readings, called back from points along the routes and the time each route was completed. The firemen and their trucks were sent to the Angier/Black River emergency worker and vehicle decontamination station when route alerting was completed.

- a. **MET: Criteria 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 ARCAs - RESOLVED: NONE**
- f. **PRIOR ARCAs - UNRESOLVED: NONE**

2.3 LEE COUNTY

2.3.1 Emergency Operations Center

The EOC, although not a dedicated facility, is equipped to support 24-hour operations. It is located adjacent to the 911 Center that also serves as the County's Warning Point. Amateur Radio Emergency Services (ARES) has dedicated space in the EOC and participated in the exercise. Initial problems with the selective signaling phone were overcome and the decision line was used to coordinate and approve PADs. The Emergency Management Director demonstrated effective direction and control and had the support of a dedicated and knowledgeable staff. Participation by the Sanford Mayor, members of the Council, City and County Managers and the Chairman of the County Board of Commissioners enhanced the EOC Operation.

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

2.3.2 Traffic Control Points

Traffic and access control **was** demonstrated by interview at the EOC with personnel **from** the NCHSP and the Sanford Police Department. Both individuals had knowledge of their roles **and** responsibilities as members of the TCP staff. They were keenly aware of procedures for individual protective actions, recording and reporting exposure records **and** requesting assistance for additional support and equipment.

- a. **MET:** Criteria 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

2.3.3 Emergency Worker Decontamination

The Northview Fire Department personnel effectively demonstrated monitoring and decontamination of emergency workers and equipment. Emergency workers demonstrated proper monitoring techniques and decontamination of emergency worker and equipment. Emergency workers had **an** excellent knowledge of dosimetry and the use of KI. A special recognition should be given to all the volunteers for the excellent performance.

- a. MET: Criteria 3.a.1, 3.b.1, 6.a.1 and 6.b.1.
- b. DEFICIENCY: NONE
- c. AREAS REQUIRING CORRECTIVE ACTION: NONE
- d. NQT DEMONSTRATED: NONE
- e. PRIOR ARCAs - RESOLVED: NONE
- f. PRIOR ARCAs - UNRESOLVED. NONE

2.3.4 Reception and Congregate Care

The Sanford Fire Department demonstrated effective monitoring and decontamination of evacuees and vehicles. Emergency workers used proper monitoring techniques. Two vehicle were monitored. Six individuals were monitored and processed through the reception center. The ARC and support staff did an excellent job with evacuee registration and care. Volunteers and staff are commended for their outstanding participation during this exercise.

- a. MET: Criteria 3.a.1, 3.b.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
- e. PRIOR ARCAs - UNRESOLVED: NONE

2.3.5 Mobile Route Alerting

Two members of the Deep River Volunteer Fire Department conducted backup route alerting and notification of the public. Individuals were briefed, issued dosimetry, and KI and advised on turn back values. Individuals drove the route using the team concept determining intervals at which to make public addresses, communicated with base operations at the fire department and took periodic dosimeter readings. Individuals ensured that all homes along the route were notified. Communications between base operations and team members were exceptional.

- a. **MET: Criteria 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 ARCAs - RESOLVED: NONE**
- f. **PRIOR ARCAs - UNRESOLVED: NONE**

2.4 WAKE COUNTY

2.4.1 Emergency Operations Center

The EOC is a small, but functional facility, with all amenities to respond to any event. The staff was proactive in providing safety for their citizens. Even though a real communications breakdown occurred with the Selective Signaling System, the Alert and Notification of the public was efficiently coordinated and activated. Frequent staff briefings were held and planning for further possible activity was discussed. Excellent feedback on current activities was provided to the Operations Chief. PADs **were** timely and appropriate. This **was** an excellent demonstration of the County's capabilities to protect citizens. A larger EOC would enhance EOC operations.

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

2.4.2 Protective Action for Schools

The *Wake* County school relocation interview **was** conducted at Holly Spring Middle School on February 13, 2003. Participants in the interview included the *Wake* County Assistant Emergency Manager, Radiological Emergency Preparedness Program Planner, *Wake* County School Safety Officer, County Director of School Transportation, and the

Principals and Assistant Principals of Holly Springs Middle School, Apex Elementary School, Fuquay Middle School and Community Partners Charter High School. All were knowledgeable of school relocation plans and evacuation procedures.

Faculty and staff are provided annual in-service training on school relocation. Teachers ride the buses with class attendance rolls to keep track of students. The buses travel in convoy with lead and rear law enforcement officers who carry portable telephones. Parents are informed about school relocation through plant information sent out annually, parent teacher association meetings, and an information handbook sent to parents by the schools. There are ample resources and well-trained personnel to evacuate students.

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

2.4.3 Traffic Control Points

The procedures for establishment of TCPs were demonstrated through an interview with a representative of the Wake County Sheriff's Department at the EOC. The officer was knowledgeable of traffic control responsibilities, proper use of dosimetry and KI, and the procedures for removing impediments to traffic flow.

- a. MET: Criteria 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

2.4.4 Vehicle Monitoring and Decontamination

The Swift Creek Volunteer Fire Department conducted vehicle monitoring and decontamination, **out** of sequence, on February 13, 2003. The vehicle monitoring and decontamination station was set up with signs pointing toward the monitoring area. Vehicles driven by evacuees came to this fire station on the way to the reception and congregate care center. The firemen monitored and decontaminated two vehicles. When a vehicle was **found** contaminated, the vehicle was surveyed on the inside and outside, and then it **was** decontaminated using water. The occupant of the vehicle was also surveyed. and when contamination was found the individual was directed to the shower where he was properly monitored and decontaminated. One person was decontaminated. Personnel wore 0-20R direct-reading and permanent-record dosimetry, and had a working knowledge of exposure limits, dosimetry use, and KI.

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

2.4.5 Emergency Worker and Vehicle Decontamination

The City of Raleigh Fire Department-Hazardous Material Unit professionally demonstrated emergency worker and vehicle decontamination on February 12, 2003. The decontamination station was completely **set up** and monitors appropriately surveyed emergency workers **as** they came into the decontamination station. The emergency vehicles were initially surveyed along with the riders. When a vehicle was found contaminated, the personnel thoroughly surveyed it, then washed the vehicle, and re-monitored it until it was clean. **All** personnel were knowledgeable of the direct-reading and permanent-record dosimetry.

- a. **MET: Criteria 3.a.1, 3.b.1 and 6.b.1.**
- b. **DEFICIENCY: NONE**
- e. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**

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

2.4.6 Reception and Congregate Case

Reception and congregate care was demonstrated out of sequence at Enloe Magnet High School in Raleigh, North Carolina on February 12, 2003. The Wake County Department of Human Services staffed the reception and congregate care center. The evacuees and their vehicles were processed through the Swift Creek Volunteer Fire Station before they arrived at the reception center, where they were processed through a portal monitor, prior to being registered. Clean evacuees were referred to the congregate care center. Contaminated evacuees were escorted to the shower, and once the evacuee was clean, he she was given a clean sticker and registered into the congregate care center. Buses are available to transport evacuees from the reception center to the congregate care center.

The congregate care staff used the Department of Human Services forms to register evacuees at the center. The shelter manager conducted a walk-through of the shelter. Health, mental health counselors and communications staff provided information. Cots, blankets and other resources to care for evacuees are available.

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

2.4.7 Mobile Route Alerting

Backup route alerting was demonstrated through an interview over the telephone with the Holly Springs Command Post Coordinator. He was knowledgeable of the route alerting procedures, routes, use of dosimetry, KI, and emergency worker exposure control procedures.

- a. **MET: Criteria 3.a.1, 3.b.1 and 5.a.3.**
- b. **DEFICIENCY: NONE**

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

3. SUMMARY OF AREAS REQUIRING CORRECTIVE ACTION

3.1 PRIOR ARCAs RESOLVED

3.1.1 08-02-A-5.b.1-01 JIC

Description: The Supplemental News Release for Emergency Alert System (EAS) messages was not effectively linked to the initial EAS broadcast and was not necessarily broadcast by the EAS station. The EAS broadcast message originates from the SEOC but the supplemental news release (containing required emergency instructions) is created, released and distributed from the JIC. An early news release with evacuation zone descriptions was provided to the media for background information prior to the first EAS broadcast. It was not identified as supplemental information to be used by the EAS station following an EAS message.

Corrective Action Demonstrated: The State Plan and JIC procedures call for emergency instructions to be transmitted immediately following the decision to activate the EAS. This vital supplemental information followed the activation of the siren, and issuance of EAS messages at the Site Area Emergency and General Emergency ECLs. Additional emergency information messages that are not preceded by sirens provide follow-up information to the public (e.g., evacuation zones, closing of schools, protection of livestock, etc.).

During the exercise EAS supplemental information messages were provided to the broadcast stations within five minutes of the EAS message being broadcast. These messages met the established criteria regarding content: They contained

- Identification of the authority issuing the emergency message.
- Description of the accident.
- Included all new information.
- Clear identification of the audience.

Early in the evolution of the emergency, the state provided the public with a description of the

emergency zones, evacuation routes and locations of reception centers. The message containing **this** information **was** clearly identified as “for information only” and specifically stated no evacuations had been ordered and the information was being provided **for** public awareness. The differences between emergency instructions and emergency information **were** emphasized during each media briefing. The practices followed in **the** release of emergency instruction and information messages ensured that the public **was** promptly **informed**.

APPENDIX 1

ACRONYMS AND ABBREVIATIONS

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

ARC	American Red Cross
ARCA	Area Requiring Corrective Action
CD-V	Civil Defense - Victoreen
CFR	Code of Federal Regulations
CPM	Counts Per Minute
DHHS	Department of Health and Human Services
DOC	Department of Commerce
DOE	Department of Energy
DOI	Department of the Interior
DOT	Department of Transportation
DRD	Direct Reading Dosimeter
EAL	Emergency Action Level
EAS	Emergency Alert System
ECL	Emergency Classification Level
EEM	Exercise Evaluation Methodology
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPA	Environmental Protection Agency
EPZ	Emergency Planning Zone
FDA	Food and Drug Administration
FEMA	Federal Emergency Management Agency
FR	Federal Register
FTC	Field Team Coordinator
ft/min	feet per minute
ft³/min	cubic feet per minute
GE	General Emergency
GM	Guidance Memorandum
ne	Joint Information Center
KI	Potassium Iodide
mR	milliroentgen
mR/h	milliroentgen per hour

NRC NUREG-0654	U.S. Nuclear Regulatory Commission NUREG-0654/FEMA-REP-1, Rev. I, " <i>Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants</i> ," November 1980
OEM ORO	Office of Emergency Management Offsite Response Organization
PAD PAG PAR PIO	Protective Action Decision Protective Action Guide Protective Action Recommendation Public Information Officer
R RAC RACES REA REM REP RERP R/h	Roentgen Regional Assistance Committee Radio Amateur Civil Emergency Service Radioactive Emergency Area Roentgen Equivalent Man Radiological Emergency Preparedness Radiological Emergency Response Plan Roentgen(s) per hour
SAE SEOC SERT	Site Area Emergency State Emergency Operations Center State Emergency Response Team
TCP TLD	Traffic Control Point Thermoluminescent Dosimeter
USDA	U.S. Department of Agriculture

APPENDIX 2

EXERCISE EVALUATORS

Following is a list of personnel evaluating the Shearon Harris Nuclear Power Plant exercise on March 4, 2003. The organizations represented are indicated by the following abbreviations:

DOT	- Department of Transportation
FDA	- Food and Drug Administration
FEMA	- Federal Emergency Management Agency
ICF	- HCF Consulting Incorporated
NRC	- Nuclear Regulatory Commission
USDA	- United States Department of Agriculture

Lawrence A. Robertson

RAC Chairman

<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
Chief Evaluator	Robert Perdue	FEMA
STATE OF NORTH CAROLINA		
State Emergency Operations Center	Robert Perdue Tom Trout	FEMA FDA
Dose Assessment	Richard Grundstrom	ICF
Joint Media Center	Bill Larrabee Brenda Pittman	ICF ICF
Emergency Operations Facility	Robert Trojanowski	NRC
CHATMAN COUNTY		
Emergency Operations Center	Eddie Hickman Lawrence Hughes	FEMA ICF
Traffic Control Points	Lawrence Hughes	ICF
Protective Action for Schools (2-12-03)	Eddie Hickman	FEMA
Reception & Congregate Care (2-10-03)	Lawrence Robertson	FEMA

<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
Emergency Worker Decon (2-10-03)	Lawrence Robertson	FEMA
Reception & Congregate Care (2-10-03)	Lawrence Robertson	FEMA
Backup Route Alerting (2-12-03)	Eddie Hickman	FEMA
Lake Warning (2-10-03)	Lawrence Robertson	FEMA
HARNETT COUNTY		
Emergency Operations Center	Helen Wilgus Paul Neid	FEMA ICF
Traffic Control Points	Paul Nied	ICF
Emergency Worker Decon (2-10-03)	Robert Perdue	FEMA
Reception & Congregate Care (2-11-03)	Robert Perdue	FEMA
Backup Route Alerting (2-10-03).	Robert Perdue	FEMA
LEE COUNTY		
Emergency Operations Center	Joe Canoles Harold Dorminey	FEMA DOT
Traffic Control Points	Harold Dorminey	DOT
Emergency Worker Decon (2-10-03)	Eddie Hickman	FEMA
Reception & Congregate Care (2-11-03)	Eddie Hickman	FEMA

<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
Backup Route Alerting (2-10-03)	Eddie Hickman	FEMA
WAKE COUNTY		
Emergency Operations Center	Tom Reynolds Ernest Boaze	FEMA ICF
Traffic Control Points	Ernest Boaze	ICF
Reception & Congregate Care (2-12-03)	Robert Perdue	FEMA
Protective Actions for Schools (2-13-03)	Robert Perdue	FEMA
Vehicle Monitoring/Decon (2-13-03)	Robert Perdue	FEMA
Mobile Route Alerting	Ernest Boaze	ICF

APPENDIX 3

EXERCISE CRITERIA AND EXTENT-OF-PLAY AGREEMENT

This appendix contains the criteria and the extent-of-play agreement which were scheduled for demonstration in the Shearon Harris Nuclear Power Plant exercise on March 4, 2003.

A. Exercise Objectives

Attached *are* the specific radiological emergency preparedness criteria scheduled for demonstration during this exercise.

B. Extent-of-Play Agreement

The extent-of-play agreement on the following pages was submitted by the State of North Carolina, and was approved by FEMA Region IV.

(In final report only)

Extent-of-Play Agreement



Federal Emergency Management Agency

Region IV
3003 Chamblee-Tucker Road
Atlanta, Georgia 30341

February 6, 2003

Mr. Scott Carpenter, REP Program Manager
Division of Emergency Management
5713 Mail Service Center
Raleigh, North Carolina 27699-4713

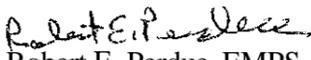
Dear Mr. Carpenter:

The Criteria and Extent-of-play agreement for the Shearon Harris Nuclear Power Plant partial participation exercise scheduled for March 4, 2003, have been accepted with the following clarification:

- 3.c.1 Protective action decisions are implemented for special population groups within areas subject to protective actions.
- During the demonstration of this criteria EOC personnel need only phone one or two special population transporters to see if the number is current and if contact can be made with the transporter. No questions are to be answered by or criteria demonstrated by the transporter.

Should you have questions, please contact me at 770/220-5464.

Sincerely,


Robert E. Perdue, EMPS
Technological Services Branch

cc: Steve Paync, DEM



North Carolina Department of Crime Control and Public **Safety**

Division of Emergency Management
4713 Mail Service Center • Raleigh, NC 27699-4713

Michael F. Easley
Governor

Bryan E. Beatty
Secretary

February 1, 2003

Robert E. Perdue, Ph.D.
Training, Exercise, and Evaluation Branch
Federal Emergency Management Agency, Region IV
3003 Chamblee - Tucker Rd.
Atlanta, Ga. 30341

Dear Dr. Perdue:

I have read your letter dated January 22, 2003, concerning the Harris 2003 Extent of Play Agreement. Following my initial review, I contacted the appropriate agencies for their comments, concerns, and clarifications. Following is the Task Force response.

Part 1 General Observations:

We agree that this exercise will establish a new baseline for the new evaluation criteria. All reception and congregate care centers will be demonstrated within a six-year cycle by the counties. Wake and Lee Counties will only be demonstrating one reception and congregate care center during the 2003 exercise. Wake County has four facilities and not five as indicated in your letter. Due to time constraints, Wake County will not be able to add an additional reception and congregate center to the demonstration matrix this year. Lee County only has three (3) centers and demonstrates one (1) every exercise.

Harnett County has agreed to reschedule their **SAV** to 12:30 p.m. on Monday, February 10, 2003, in order to accommodate federal travel plans.

Back-up Alert & Notification of the Public will be demonstrated in the field, during the out-of-sequence activities by the counties. However, they will describe their procedures for siren failure during the exercise with the federal evaluator. Wake County will be demonstrating a route during their on-scenario demonstration. A route will be selected and run from Holly Springs Command Post. EOP will be edited to reflect this change.

Discussion of decontamination SOPs will be done off-scenario with lead agencies during field demonstrations and not during the regularly scheduled exercise play at the EOC.

Relocation SOPs will be discussed during out-of-sequence interviews with school administrators. Appropriate news releases will be made during regularly scheduled exercise play from the Joint Information Center (JIC) or county EOC, depending on the scenario. Only Wake & Chatham Counties have schools in the IO-mile EPZ.

Part 2 Harris 2003 Matrix:

1.b.1. and 1.e.1. : The State listing has been removed from the Extent of Play (EOP) and on the criterion matrix.

We have left the SAV information on page 5 of the EOP to inform counties and evaluators of when and where the SAVs will be conducted. We have received your letter on the SAV and forwarded it to the counties in order for them to prepare for these visits.

2.b.1. : We respectfully disagree. Counties make protective action recommendations and decisions prior to the State assuming direction and control. Information in the EOP is not based on state or county status. as to who has in Direction & Control; rather, it is based on the ability of that organization to accomplish the criteria.

2.c. : As stated in the EOP, this will be discussed with the federal evaluator. A bullet showing that actual telephone calls will not be made to transportation resources will be added to the EOP.

3.c.2 : A school bus driver from each school will be available for interview, Information on school relocations from County EOCs will be in accordance with SOPs.

3.d.1 : All agencies demonstrating the criterion are listed in the EOP for each county. One officer from each agency listed will be available for interview by the federal evaluator.

4. : We will clarify in the EQP that this is for technical assistance only and will not be evaluated.

5.a.1. Procedures for the determination of EAS messages and the subsequent release are found in the Harris Emergency Plan and the Harris Message Book.

5.b. : We will add wording in the EOP indicating that the ARCA from Brunswick will be corrected during the Harris exercise.

6.c.1 : We will add the comment as specified to the EOP

I will forward a revised EOP and demonstration Matrix to you by this Friday, February 7, 2003. Thank you and we look forward to your letter of acceptance and/or comment

With best regards,

Scott Carpenter, NCEM
Exercise Coordinator

Cc: Harris Task Force Members

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Harris Nuclear Power Plant Exercise 2003 Extent of Play Agreement

A. **General Information**

- Activities will begin at approximately 8:00 a.m. and conclude approximately 2:00 p.m.
- Sirens will be simulated at Site Area Emergency and General Emergency
- State and county participants may be pre-positioned at exercise locations.
- Utility will provide a liaison to State EOC, Chatham, Harnett, Lee, & Wake County EOCs
- A state or county escort will accompany Federal Evaluators to out-of-sequence demonstrations.
- A State Controller will be located in the State EOC, Chatham County EOC, Harnett County EOC, Lee County EOC, Wake County EOC, and the JIC.
- Federal Evaluators and a SERT Representative will be located in each of the EPZ counties.
- Exercise participants will have the opportunity to remediate and re-demonstrate exercise criteria immediately upon identifying any error/s with the approval of the federal evaluator.
- All demonstrations will be in accordance with the approved Extent of Play Agreement.

B. **Scenario**

- Scenario was developed by the Utility in consultation with the State using FEMA guidelines.
- At least one wind shift will be built into the scenario for the PAD making process.
- A communication failure will be discussed at the County and State EOCs.

C. Meeting Times

I. Federal Evaluator Briefing:

**Harris Plant Energy and Environmental Center, HEEC Boardroom
New Hill-Holleman Road (SR 1127)
New Hill, North Carolina**

Date & Time: 2:00 p.m., Monday, March 3, 2003

II. State & County Internal Critique:

**State Emergency Operations Center
116 West Jones Street
Raleigh, NC**

Date & Time: 1:00 p.m., Wednesday, March 5, 2003

III. Participant's Out Briefing:

**Harris Plant Energy and Environmental Center, HEEC Boardroom
New Hill-Holleman Road (SR 1127)
New Hill, North Carolina**

Date & Time: 10:00 a.m., Thursday, March 6, 2003

IV. Public Briefing:

**Harris Plant Energy and Environmental Center, HEEC Boardroom
New Hill-Holleman Road (SR 1127)
New Hill, North Carolina**

Date & Time: 11:00 a.m., Thursday, March 6, 2003

**HARRIS 2003 CRITERION MATRIX
FULLSCALE EPZ EXERCISE**

Evaluation Sub Elements (EPZ) = Emergency Planning Zone County (IPZ) = Ingestion Pathway Zone County E - Evaluated T - Training Only O - Off Scenario	N C S E R T	E H A T H A M	H A R N E T T	L E E	W A K E
		EPZ)	(EPZ)	(IPZ)	EPZ)
1. Emergency Operations Management					
1.a.1. Mobilization of Response Personnel	E	E	E	E	E
1.b.1. Facilities	E	E	E	E	E
1.c.1. Direction and Control	E	E	E	E	E
1.d.1. Communications Equipment	E	E	E	E	E
1.e.1. Equipment & Supplies to Support Operations	E	E	E	E	E
2. Protective Action Decisionmaking					
2.a.1. Emergency Worker Exposure Control	E	E	E	E	E
2.b.1. Rad Assessment PARs & PADs Based on Available information	E	E	E	E	E
2.b.2. Rad Assessment of PARs & PADs for General Public	E	E	E	E	E
2.c.1. Protective Action Decisions for Protection of Special Populations		E	E	E	E
2.d.1. Radiological Assessment and Decision Making for Ingestion Exposure	2013	2013	2013	2013	2013
2.e.1. Radiological Assessment and Decision Making for Relocation, Re-entry & Return	2013	2013	2013	2013	2013
3. Protective Action Implementation					
3.a.1. Implementation of Emergency Worker Exposure Control	E	E	E	E	E
3.b.1. Implementation of KI Decisions	E	E	E	E	E
3.c.1. Implementation of PADs for Special Pops.	n/a	E	E	E	E
3.c.2. Implementation of PADs for Schools	n/a	E	n/a	n/a	E
3.d.1. implementation of Traffic and Control	E	E	E	E	E
3.d.2. Impediments to Traffic and Access Control	E	E	E	E	E
3.e.1. Implementation of Ingestion Pathway Decisions Using Adequate Information	2013	2013	2013	2013	2013
3.e.2. Implementation of Ingestion Pathway Decisions Showing Instructional Materials	2013	2013	2013	2013	2013
3.f.1. Implement Relocation, Re-entry, and Return	2013	2013	2013	2013	2013

Evaluation Sub Elements (EPZ) = Emergency Planning Zone (IPZ) = Ingestion Planning Zone E - Evaluated T - Training Only O - Off Scenario	N C S E R T	C H A T H A M	H A R N E T T	L E E	W A K E
		EPZ	EPZ	EPZ	EPZ
4. Field Measurement and Analysis					
4.a.1. Plume Phase Field Measurements & Analysis Equipment	T	n/a	n/a	n/a	n/a
4 a 2. Plume Phase Field Measurements & Analysis Management	T	n/a	n/a	n/a	n/a
4 a 3. Plume Phase Field Measurements & Analysis Procedures	T	n/a	n/a	n/a	n/a
4.6. <i>Post Plume Phase Field Measurements & Sampling</i>	2013	n/a	n/a	n/a	n/a
<i>4.c. Laboratory Operations</i>	2013	n/a	n/a	n/a	n/a
5. Emergency Notification and Public Information					
5.a 1. Activation of the Prompt Alert and Notification	E	E	E	E	E
5.a 2. Activation of the Prompt Alert and Notification 15 Minute Fast Breaker	n/a	n/a	n/a	n/a	n/a
5.a.3. Exception Areas and Back-up Alert and Notification	E	E	E	E	E
5.b.1. Emergency Information & Instructions for the Public & Media	E	E	E	E	E
6. Support Operations/Facilities					
6.a.1. Monitoring & Decontamination of Evacuees & Emergency Workers Registration of Evacuees	n/a	E-O	E-O	E-O	E-O
6.b.1. Monitoring & Decontamination of Emergency Worker Equipment	n/a	E-O	E-O	E-O	E-O
6.c. 1. Temporary Care of Evacuees	n/a	E-O	E-O	E-O	E-O
6.d.1. Transportation & Treatment of Contaminated, Injured Individuals (MS-1)	n/a	n/a	E-O	n/a	2002

Note: 6 d.1 will be conducted out of sequence of the exercise due to changes being implemented at hospital

** DRAFT: August 22, 2002

2003 HARRIS EXERCISE
OUT-OF-SEQUENCE ACTIVITIES
February 10 - 13, 2003

Date/ Time	Monday February 10, 2003 Harnett & Lee Counties	Tuesday February 11, 2003 Harnett & Lee Counties
0800 to 1200	Harnett County: 0900 Staff Assistance Visit Harnett Co EM Office	
1200 to 1800	1400 Lake Warning - Criterion 5.a.3 Jordan Lake Launch Area Chatham County EM, NC Wildlife, US Army Corps of Engineers. NC Park Service	Lee County: 1500 Staff Assistance Visit Lee County EM Office
	Chatham County: 1900 Reception Center - Criterion 6.a.1 Chatham Central High School Bonlee Fire Department 1900 Evacuee Monitoring & Decontamination - Criterion 6.a.1 Chatham Central High School Bonlee Fire Department 1900 Temporary Care of Evacuees - Criterion 6.c.1 Chatham Central High School Red Cross	Harnett County: 1900 Reception Center - Criterion 6.a.1 Harnett Central High School Coats and Buies Creek Fire Departments 1900 Temporary Care of Evacuees - Criterion 6.c.1 Harnett Central High School Harnett Co DSS, Public Health, & Red Cross
1800	Harnett County: 1900 Backup Alert and Notification of the Public - Criterion 5.a.3 NW Harnett & Summerville Fire Departments at NW Harnett station 2000 Monitoring & Decontamination of Emergency Workers & Equipment - Criterion 6.a.1 & 6.b.1 Angier Fire Department at station Lee County 1900 Backup Alert and Notification of the Public - Criterion 5.a.3 Deep River Fire Department at station 2000 Emergency Equipment Decontamination - Criterion 6.a.1 & 6.b.1 Northview Fire Department at station	Lee County: 1830 Reception Center - Criterion 6.a.1 East Lee Middle School Care Center Sanford Fire Department 1830 Temporary Care of Evacuees - Criterion 6.c.1 East Lee Middle School Care Center Lee County DSS & Red Cross 830 Reception Center - Criterion 6.a.1 East Lee Middle School Care Center Sanford Fire Department

Date/ Time	Wednesday February 12, 2003 Chatham & Wake Counties	Thursday February 13, 2003 Chatham & Wake Counties
0800 to 1200	<p style="text-align: center;">Wake County:</p> <p>0900 Monitoring & Decontamination of Emergency Workers & Equipment - Criterion 6.a.1 Fire Station #12 Raleigh Fire Department</p> <p style="text-align: center;">Chatham County:</p> <p>0900 Staff Assistance Visit Chatham County EM Office</p> <p>1100 Protective Actions for Schools - Criterion 3.c.2 Moncure Elementary School</p>	<p style="text-align: center;">Wake County:</p> <p>0900 Staff Assistance Visit Wake County EOC</p>
1200 to 1800		<p style="text-align: center;">Wake County:</p> <p>11300 Protective Actions for Schools Criterion 3.c.2 Holly Ridge Elementary School</p>
1800 to 2400	<p style="text-align: center;">Chatham County</p> <p>1900 Backup Alert and Notification of the Public - Criterion 5.a.3 Moncure Fire Department at Station</p> <p>2030 Monitoring & Decontamination of Emergency Workers & Equipment - Criterion 6.a.1 & 6.b.1 First Health of the Carolina's Base Pittsboro Fire Department</p> <p style="text-align: center;">Wake County</p> <p>1800 Reception Center - Criterion 6.a.1 Enloe High School Wake Health & Human services</p> <p>1800 Temporary Care of Evacuees - Criterion 6.c.1 Enloe High School Ked Cross & Wake Health & Human Services</p>	<p style="text-align: center;">Wake County</p> <p>1900 Evacuee Vehicle Decontamination Criterion 6.a.1 Swift Creek Fire Department at station</p> <p>7</p>

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-0554, A.4., D.3., 4., E.1., 2., H.4.)

EXTENT OF PLAY:

- Participants: NC SERT, Chatham, Harnett, Lee & Wake Counties
- State and local response personnel may be pre-positioned.
- Notification rosters will be provided to FEMA evaluators. Emergency management personnel will discuss alert notification procedures with the evaluator.
- Radiation Protection's Mobile Laboratory and other field activities will be conducted from National Guard Facility at Raleigh-Durham International Airport. Field activities and demonstrations will take place on scenario the day of the exercise for Training Only.
- Discussion of mobilization will be at the EOC when demonstrating call down procedures. Some personnel may be called-up for Training Only to activate facilities, but not for evaluation.

1.b. -- Facilities

Criterion 1.b.1

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

EXTENT OF PLAY:

- Participants: Chatham, Harnett, Lee & Wake Counties
- All participants in agreement with criterion.
- State EOC was demonstrated during Brunswick 2002 exercise

1.c - Direction and Control:

Criterion 1.c.1:

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

EXTENT OF PLAY

- **Participants: NC SERT, Chatham, Harnett, Lee & Wake Counties**
- **Wake County will be the lead-coordinating county for the Harris Counties until Site Area Emergency. Following the simulated sounding of sirens and issuance of the first PAD recommendations to the public, Wake County will request the State assume direction and control.**
- **All participants in agreement with criterion.**

1.d - Communications Equipment:

Criterion 4.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.)

EXTENT OF PLAY

Participants: NC SERT, Chatham, Harnett, Lee & Wake Counties

- **Communication breakdown/failures will be discussed with the federal evaluators during the exercise at state and county EOCs.**
- **EM 2000 will be demonstrated during this exercise.**
- **All participants in agreement with criterion.**

1.e - Equipment and Supplies to Support Operation:

Criterion 1.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: Chatham, Harnett, Lee & Wake Counties**

- Availability and currency of emergency worker KI will be verified by a FEMA Staff Assistance Visit to the EPZ Counties prior to or during the exercise.
- Dosimeters will be inspected by FEMA during the Staff Assistance Visit to the EPZ Counties prior to or during the exercise.
- All participants in agreement with criterion.

Chatham County:

- Staff Assistance Visit will take place off-scenario, February 12, 2003 at 09:00 a.m.

Harnett County:

- Staff Assistance Visit will take place off-scenario, February 10, 2003 at 12:00 p.m.

Lee County:

- Staff Assistance Visit will take place off-scenario, February 11, 2003 at 03:00 p.m.

Wake County:

- Staff Assistance Visit will take place off-scenario, February 13, 2003 at 09:00 a.m.

2. PROTECTIVE ACTION DECISION MAKING

2.1 - Emergency Worker Exposure Control:

Criterion 2.1.1:

PAOs use a decision making process, considering relevant factors and appropriate coordination, to insure that an exposure control system, including the use of KI, 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: NC SERT, Chatham, Harnett, Lee & Wake Counties
- No distribution of actual or simulated KI will be accomplished during the exercise.
- All participants in agreement with criterion.

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: NC SERT, Chatham, Harnett, Lee & Wake Counties**
- **Radiation Protection will establish an independent dose assessment and projection team at the State EOC. This team will communicate with the utility EOF, State Mobile Lab and deployed field survey teams to obtain data for developing dose projections.**
- **Back-up dose assessment will be demonstrated by Radiation Protection.**
- **All participants in agreement with criterion.**

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 KI, if ORO policy). (NUREG-0654, J.9.,10.m.)

EXTENT OF PLAY:

- **Participants: NC SERT, Chatham, Harnett, Lee & Wake Counties .**
- **Radiation Protection will analyze technical data and make recommendations to SERT Leader who in turn will make recommendations to the EPZ County EM Coordinators.**
- **Weather data will be pre-determined and will include a wind shift during the exercise in order to demonstrate OROs capability to adapt to changes requiring protective actions.**
- **All participants in agreement with criterion.**

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: **Chatham, Harnett, Lee & Wake Counties**
- Counties will demonstrate their procedures through discussion with the Federal Evaluator, by using a special populations list.
- Distribution of KI to institutionalized individuals, who cannot be evacuated, will be discussed with the Federal Evaluator.
- A list of transportation resources will be available to the federal evaluator. but no actual phone contact will be made.

3. PROTECTIVE ACTION IMPLEMENTATION

3.a – Implementation of Emergency Worker Exposure Control:

Criterion 3.a.1:

The CROs issue appropriate dosimeters and 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. (NUREG-0654, K.3.)

EXTENT OF PLAY:

- Participants: NC SERT. Chatham, Harnett, Lee & Wake Counties
- Chatham, Lee, Harnett and Wake Counties will discuss their process during out-of-sequence activities.
- Radiation Protection will provide technical advice and assistance to the state and counties.
- All participants in agreement with criterion.

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 is maintained. (NUREG-0654, E.7., J.10. e, f.)

EXTENT OF PLAY:

- **Participants :** NC SERT, Chatham, Harnett, Lee & Wake Counties
- **Demonstration of KI will be through "Discussion Only" at State and County EOCs.**
- **All participants in agreement with criterion.**

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-0654, E.7.,J.9.,10.c.d.e.g.)**

EXTENT OF PLAY:

- **Participants: Chatham, Harnett, Lee & Wake Counties**
- **A current list of Special Needs Populations will be provided to the Federal Evaluator for review.**
- **Evacuation/relocation requirements will be demonstrated via discussion at the EOCs, based on the scenario and county implementation procedures.**
- **Contact via telephone with special population groups for PADs and transportation resources will be simulated.**
- **Counties in agreement with criterion.**

Criterion 3.c.2:

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

EXTENT OF PLAY:

- **Participants: Chatham & Wake Counties**
- **School evacuation procedures and interviews will be demonstrated via discussion only with key school staff members, including school bus drivers.**
- **Counties in agreement with criterion.**

**Chatham Schools for evaluation include:
Moncure Elementary School
Moncure School Road,
Moncure, NC**

Time: Off-Scenario, February 12, 2003 at 12:00 p.m.

Wake Schools for evaluation include:

Holly Ridge Elementary School
 Holly Springs Elementary School
 Holly Ridge Middle School
 Community Partners Charter School

Location:
 Holly Ridge Elementary School

Time: Off-Scenario, 1:00 p.m., February 13, 2003

3.d – Implementation of Traffic and Access Control:

Criterion 3.d.1:

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:** SERT, Chatham, Harnett, Lee & Wake Counties
- Traffic control points will be discussed with the Federal Evaluator at each County EOC. Law enforcement personnel will discuss proper procedures, equipment and turn back dues. At least one agency representative will be available for interview.
- When State is in direction & control the SERT Leader will determine appropriate access control measures to restrict access to contaminated areas
- Counties in agreement with criterion.

Chatham County representatives available for interview include:

NC State Highway Patrol

Time: On-scenario, March 4, 2003 at 10:00 a.m.

Harnett County Representatives available for interview include:

Harnett County Sheriff's Department
 NC State Highway Patrol

Time: On-scenario, March 4, 2003 at 10:00 a.m.

Lee County Representatives available for interview include:

Lee County Sheriff's Department
Sanford Police Department
NC State Highway Patrol

Time: On-scenario, March 4, 2003 at 10:00 a.m.

Wake County Representatives available for interview include:

Wake County Sheriff's Department

Time: On-scenario, March 4, 2003 @ 10:00 a.m.

Criterion 3.d.2:
Impediments to evacuation are identified and resolved
(NUREG-0654, J.10.,j.,k.)

EXTENT OF PLAY:

- **Participants:** NC SERT, Chatham, Harnett, Lee & Wake Counties
- The EM Coordinator or appropriate EOC staff will describe what resources are available to remove impediments from thoroughfares.
- Counties in agreement with criterion.

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:** Division of Radiation Protection
- Radiation Protection will demonstrate *this* criterion using two *field* survey teams.
- This criterion will be demonstrated for "Training Only" as part of the joint federal/state partnership agreement and will not be evaluated
- **Date and Time:** On-scenario, March 4, 2003

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: **Division of Radiation Protection**
- **Radiation Protection will demonstrate this criterion using two field survey teams.**
- **This criterion will be demonstrated for "Training Only" as part of the joint federal/state partnership agreement and will not be evaluated.**
- **Date & Time: On-scenario, March 4, 2003**

Criterion 4.a.3:

Ambient radiation measurements are made and recorded at appropriate locations, and radioiodine and particulate sampler 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.
(NL REG-0654, I.8., 9., 11.)

EXTENT OF PLAY.

- Participants: **Division of Radiation Protection**
- **This criterion will be demonstrated for "Training Only" as part of the joint federal/state partnership agreement and will not be evaluated.**
- **Date & Time: On Scenario, March 4, 2003**

5. 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 REP-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 10CFR Part 50, Appendix E & NUREG-0654, E.1.,4.,5.,6.,7)

EXTENT OF PLAY:

- **Participants:** NC SERT, Chatham, Harnett, Lee & Wake Counties
- At Site Area Emergency North Carolina's counties will be in Direction and Control. Following the sounding of the sirens (simulated) and the first PAD recommendations to the public, Wake County will request the state to take over direction & control.
- Wake County will be the "Lead County", and will coordinate and conduct the countdown for simulated siren activation.
- EAS procedures and messages are found in Harris Emergency Plan and Harris Message Book.
- " Counties in agreement with criterion.

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. (N FREG-0654, E.6., Appendix 3.B.2.c.)

EXTENT OF PLAY:

- **Participants:** NC SERT, Chatham, Harnett, Lee & Wake Counties
- Sounding of the sirens will be simulated. Backup route alerting procedures around any failed siren will be discussed or demonstrated at appropriate times.
- If a siren is deemed to have failed, back-up alerting will be discussed with the federal evaluator for a pre-determined zone (siren failure simulated).
- Lake Warning will be accomplished through discussion only at Jordan Lake (Off-scenario, February 10, 2003). NC Wildlife and US Army Corps of Engineers will have one boat available to take a federal evaluator out on the lake if requested.
- Counties in agreement with criterion.

Chatham County will demonstrate at:

Moncure Fire Department
Old Highway 1
Moncure, NC

Date and Time: Off-scenario, February 42, 2003 at 7:00 p.m.

Hamett County will demonstrate at:

**Northwest Hamett Fire Department & Summerville
6056 Christian Light Road
Fuquay Varina, NC**

Date and Time: Off-scenario, February 10, 2003 at 7:00 p.m.

Lee County will demonstrate at:

**Deep River Fire Department
Deep River Road
Sanford, NC**

Date and Time: Off-scenario, February 10, 2003 at 7:00 p.m.

**Wake County will demonstrate at Holly Springs Command Post
Date and Time: On Scenario, March 4, 2003 at 10:00 a.m.**

- **Harris Lake notifications will be through discussion only at EOC.**

Agency: Wake County Sheriff's Office

Date and Time: On-scenario, March 4, 2003 at 11:00 a.m.

Jordan Lake Land (Land Area) Warning)

North Carolina State Park Service

Location: Park Office on US 54 at Jordan Lake

Date & Time: Off-scenario, February 10, 2003 at 2:00 p.m.

Jordan Lake (Water Area) Warning:

- **North Carolina Wildlife will provide the boat for lake warning demonstration.**

**Chatham County
North Carolina State Park Service
North Carolina Wildlife
US Army Corps of Engineers**

Location: Jordan Lake Launch Ramp off US 64 @ Jordan Lake

Date and Time: Off-scenario, February 10, 2003 at 4:00 p.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: NC SERT, Chatham, Harnett, Lee & Wake Counties
- PIOs or designated staff will receive rumor control calls at the JIC once it is activated. Approximately six calls per hour will be made to the JIC, until objectives are met.
- Counties will receive several calls prior to the activation of the JIC. News releases should be discussed and coordinated between Counties prior to JIC activation.
- Once JIC is operational two rumors will be identified as well as any trends and appropriate actions taken to address them.
- Counties in agreement with criterion.

6. SUPPORT OPERATION/FACILITIES

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

Criterion 6.a.1:

The facility/ORO has adequate procedures and resources for the accomplishment of monitoring and decontamination of emergency worker equipment, including vehicles. (NUREG-0654, J.10.h; K.5.b.)

EXTENT OF PLAY:

- Participants: Chatham, Harnett, Lee & Wake Counties
- One portal monitor will be demonstrated at reception centers.
- Six evacuees will be monitored; one will be found to be contaminated.
- Evacuee decontamination procedures will be via discussion and walk through of facilities (No actual or simulated decontamination of evacuees)
- Two emergency workers will be monitored.
- Emergency Worker decontamination procedures will be via discussion and walk through of facilities (No actual decontamination of workers).
- One emergency vehicle will be decontaminated [simulated using water]

- **Counties in agreement with criterion.**

Chatham County:

Public Reception Center:

Bonlee Fire Department will demonstrate at:
Chatham Central High School
NC Highway 902
Bear Creek, NC

Date & Time: Off-scenario, February 10, 2003 at 7:00 p.m.

Evacuation Monitoring and Decontamination:

Bonlee Fire Department will demonstrate at:
Chatham Central High School
NC Highway 902
Bear Creek, NC

Date & Time: Off-scenario, February 10, 2003 at 7:00 p.m.

Emergency Worker and Vehicle Decontamination:

Fittsboro Fire department at:

First Health of the Carolina's Base
US 64 East
Pittsboro, NC

Date & Time: Off-scenario, February 12, 2003 at 0830 p.m.

Harnett County:

Public Reception Center:

Coats and Buies Creek Fire Departments will demonstrate at:
Harnett Central High School
2911 Harnett Central Road
Angier, NC

Date & Time: Off-scenario, February 11, 2003 at 7:00 p.m.

Emergency Worker Decontamination:

Angier Fire Department
309 North Broad Street
Angier, NC

Date & Time: Off-scenario, February 10, 2003 at 8:00 p.m.

Lee County:

Emergency Worker Decontamination:

Northview Fire Department
104 Perkenson Road
Sanford, NC

Date & Time: Off-scenario, February 10, 2003 at 6:30 p.m.

Public Reception Center:

Sanford Fire Department
East Lee Middle School
43337 Broadway Road
Sanford, NC

Date & Time: Off Scenario, February 11, 2003 at 6:30 p.m.

Wake County:

Emergency Worker and Vehicle Decontamination:

Raleigh Fire Department will demonstrate at:

Raleigh Fire Station #12
Address: 3409 Poole Road
Raleigh, NC

Date & Time: Off-scenario, February 12, 2003 at 9:00 a.m.

Public Reception Center:

Wake County Health & Human Services
Enloe High School
Raleigh, NC

Date & Time: Off-scenario, February 12, 2003 at 6:00 p.m.

Public Vehicle Decontamination

Swift Creek Fire Department
Tryon & Holly Springs Road
Cary, NC

Date & Time: Off-scenario, February 13, 2003 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-0654, K.5.b.)

EXTENT OF PLAY:

- **Participants: Chatham, Harnett, Lee & Wake County.**
- **Two vehicles will be monitored and decontaminated using water at the following times and locations (dependent upon weather conditions):**

Chatham County:

Pittsboro Fire Department will demonstrate at:

**FirstHealth of the Carolina's Base
1456 US 64 East
Pittsboro, NC**

Date & Time: Off-scenario, February 12, 2003 at 08:30 p.m.

Harnett County:

Angier Fire Department will demonstrate at:

**Angier Fire Department
309 North Broad Street
Angier, NC**

Date & Time: Off-scenario, February 10, 2003 at 8:00 p.m.

Lee County:

Emergency Vehicle Decontamination:

Northview Fire Department will demonstrate at:

**Northview Fire Department
104 Perkenson Road
Sanford, NC**

Date & Time: Off-scenario, February 10, 2003 at 8:00 p.m.

Public Vehicle Decontamination:

Sanford Fire Department will demonstrate at:

**East Lee Middle School
1337 Broadway Road
Sanford, NC**

Date & Time: Off-scenario, February 14, 2003 at 6:30 p.m.

Wake County:

Raleigh Fire Department will demonstrate at:

**Fire Station #12
3409 Poole Road
Raleigh, NC**

Date & Time: Off-scenario, February 12 at 09:00 a.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.
(NIREG-0854, J.10.h.,12.)**

EXTENT OF PLAY:

- **Participants: Chatham, Hamett, Lee & Wake Counties**
- **Six individuals per monitoring site will be demonstrated.**
- **Counties in agreement with criterion.**

Chatham County:

American Red Cross will demonstrate at:

**Chatham Central High School
NC Highway 902
Bear Creek, NC**

Date & Time: Off-scenario, February 10, 2003 at 7:00 p.m.

Harnett County:

American Red Cross, **DSS & Public Health** will demonstrate at:

Harnett Central High School
2911 **Harnett** Central Road
Angier, NC

Date & Time: Off-scenario. February 11, 2003 at **7:00p.m.**

Lee County:

American Red Cross & Lee County DSS will demonstrate at:

East Lee Middle School
1337 Broadway Road
Sanford, NC

Date & Time: Off-scenario, February 11, 2003 at **6:30 p.m.**

Wake County:

American Red Cross & Human Services will demonstrate at

Enloe High School
128 Clarendon Crescent
Raleigh, NC

Date & Time: Off-scenario, February 12, 2003 at **6:00 p.m.**

6d – 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. (NUREG-0654, F.2., H.10., K.5.a., b., L.1., 4.)

EXTENT OF PLAY:

- **Participants: Harnett County**

Harnett County EMS and **Betsy Johnson Hospital** will demonstrate at:

Betsy Johnson Regional Hospital
800 **Tilghman** Drive
Dunn, NC

Date & Time: Off-scenario, June 17, 2003 (TBD)

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 Shearon Harris Nuclear Power Plant exercise on March 4, 2003.

This scenario was submitted by the State of North Carolina and Progress Energy and approved by **FEMA Region IV**.

Exercise 'Scenario

03-FEMA TIME LINE (07:30 - 15:00)	
07:30	Start of drill related activities at the Harris Site.
08:07	Loss of Control Room Annunciators (alarm indications).
08:22	Unusual Event for extended (>15 min.) loss of annunciators.
09:00	Loss of a Main Feed Water Pump, Turbine Run Back (automatic power reduction transient), extended loss of annunciators with a transient in progress = Alert .
09:15	Reactor Coolant activity level increase is detected. Fuel Fission Product Barrier (FPB) is classified as "Breached."
09:56	A Control Bank Rod will become physically bound as a result of fuel rod bowing within the associated region of the reactor core.
10:23	Steam Generator tube leakage occurs.
10:34	The Reactor Coolant System to Steam Generator leak rate will exceed the requirements to classify the RCS FPB as breached. Two (2) FPBs breached (Fuel & RCS) results in a Site Area Emergency . The activity which enters the secondary system will be processed and released from the plant's Turbine Building Vent Stack. There will be a slight Noble Gas release which will result in detectable ($\mu R/hr$) off-site doses. Notification to off-site authorities should include the fact that an "Emergency Release" is in progress (filtered). The release, other than Noble Gases, will be at or near "normal release limits."
12:10	The controlled shutdown of the reactor is anticipated to be complete at approximately this time.
13:08	The plant cool down/pressure decrease is in progress when an unanticipated opening of one of the affected Steam Generator Safety Relief Valves occurs. This will result in classification of the Containment FPB as breached and declaration of a General Emergency . The open safety valve results in a more significant off-site radiological release. This release contains some Iodine and Particulate activity contribution with measured doses off-site in the mR/hr range. Notification to off-site authorities should include PARs for 2-mile radius and 5 miles downwind (Evacuate "A & "K"). Dose assessment results will confirm the adequacy of the plant condition based PARs (no need to evacuate any further than 2/5).
14:10	Release from the S/G safety valve is stopped by local manual action.
14:30 - 15:00	Anticipated Drill Termination.

DAMAGE CONTROL MISSION INDEX

NO.	TITLE OF MISSION:	TIME:
1.	Loss of MCB Annunciator System #2	08:05
2.	Partial Loss of MCB Annunciator System #1	08:07
3.	Loss of "B" MFW Pump	09:00
4.	Stuck Control Rod H-14 (Control Bank "D")	09:56
5.	Failure of "C" Steam Generator Safety Valve	13:08

OTHER IN-PLANT ACTIVITIES W/O MISSION PACKAGES

- | | | |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| A. | Performance of procedures RST-211 & 204 (Chemistry activities associated with rapid power level change). | ≈ 09:08 |
| 3. | Operations place CVCS Cation demineralizer bed in service. | ≈ 09:17 |
| 2. | Health Physics personnel evaluate GFFD and Letdown related radiation level increases. | ≈ 09:17 |
| 3. | Chemistry activities associated with RCS sampling for increased RCS activity. | ≈ 09:24 |
| 3. | Operations and Maintenance GP-005 shutdown related in plant activities (Start Aux. boiler, shutdown and realignment of secondary system equipment. etc.). | ≈ 09:43 |
| 3. | Condenser Vacuum Pump and Treatment System alignments in response to primary to secondary leakage | ≈ 10:27 |
| i. | Chemistry perform procedure CRC-804 to quantify primary to secondary leakage. | ≈ 10:30 |

IN GENERAL ONLY ACTIONS THAT WOULD INTERFERE WITH PLANT OPERATIONS OR EXPEND FUNDS WILL BE SIMULATED. ALL OTHER ACTIONS SUCH AS GATHERING PRINTS AND TOOLS, MAKING SURVEYS, TEAM BRIEFINGS, LOCATING NEEDED PARTS, RIGGING, ETC., SHOULD BE PERFORMED. SPECIFIC LIMITATIONS ARE CONTAINED IN EACH DAMAGE CONTROL PACKAGE. ANY QUESTIONS IN THIS AREA SHOULD BE REFERRED TO THE LEAD OSC CONTROLLER.

Scenario 03-FEMA - In Plant Radiological Data

- 08:00 At the start of the Drill, typical plant values are used for Reactor Coolant System (RCS) activity and radiation monitoring system readings. Primary to secondary leakage in the steam generators and RCS leakage in the Reactor Containment Building (RCB) are negligible. Steam generator and RCB atmosphere activity, and plant radiation are as measured.
- 09:15 Reactor Coolant System activity increases as a result of minor fuel cladding perforation. Radiation levels in the vicinity of CVCS Letdown piping will be elevated. Radiation readings associated with the Letdown related monitors should be checked prior to entering these areas. RCS sampling related activities will experience increased radiation levels, refer to the dose rate information contained in Section 7 for this information.
- 10:23 Primary to secondary leakage occurs. Refer to the map on page 2 for steam tunnel related dose rates.

Information in this section includes maps and data for:

-
-
- Steam Tunnel pg 2
 - Turbine Bldg. 314' Elevation pg 3
 - Turbine Bldg. 286' Elevation. pg 4
 - Turbine Bldg. 240' Elevation pg 5

Scenario 03-FEMA - Off Site Radiological Impact

1. First (minor noble gas) release begins at 10:23 and lasts throughout the drill. Release values for off-site consequence calculations are assumed to be steady during the duration of this release. The noble gas release rate for this release is 4.81 E-03 Ci/sec.
2. Second release begins at 13:08 and is terminated at 14:10. The radiological release rate drops slightly over the duration of the release as Steam Generator pressure (driving force for release) decreases. Maximum and minimum values for the duration of the release are:
 - Noble Gas: 10.9 - 9.06 Ci/sec
 - Halogen: 0.216 - 0.175 Ci/sec
 - Particulate: 0.018 - 0.016 Ci/sec

Meteorological Conditions for both releases:

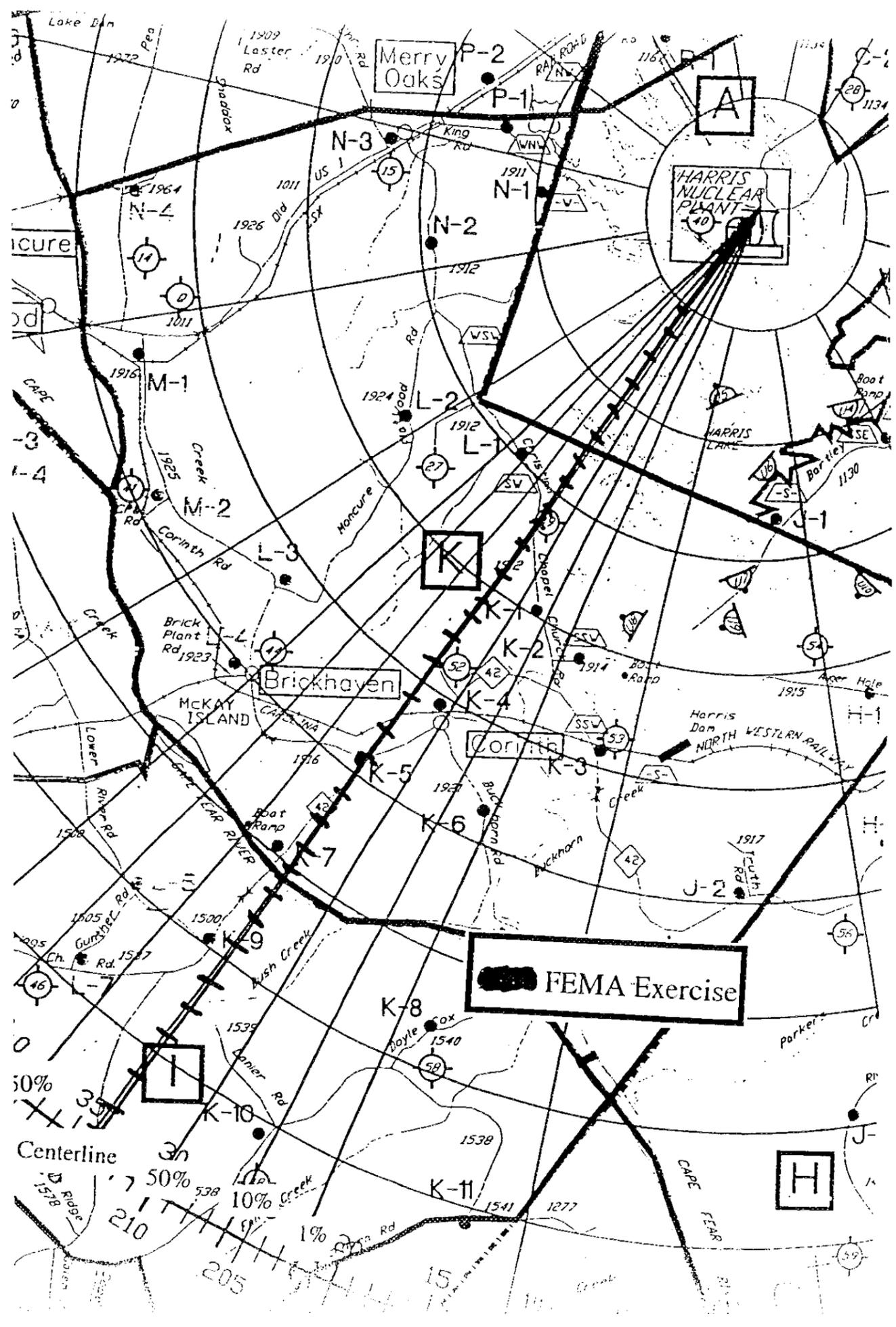
Winds initially steady from 35° at 4 MPH with a "C" Stability class. A wind shift will occur to exercise changing PARs.

Radioactive decay during transit is modeled for the off-site radiological data.

Peak measurable (Immersion EDE) values for release #1 <1 mrem/hr (no PAGs exceeded)

Peak measurable (Immersion EBE) values for release #2:

- 112 mrem/hr at 0.5 miles downwind centerline @ 13:30.
- 40 mrem/hr at 1 mile downwind centerline @ 13:30
- 6 mrem/hr at 3 mile downwind centerline



FEMA Exercise

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