Official

SEP 10 1985

Carolina Power and Light Company
ATTN: Mr. E. E. Utley
Senior Executive Vice President
Power Supply and Engineering
and Construction
P. O. Box 1551
Raleigh, NC 27602

Gentlemen:

SUBJECT: FEMA FINAL REPORT - SHEARON HARRIS POWER STATION
EXERCISE ON MAY 17-18, 1985

Enclosed is the Federal Emergency Management Agency's (FEMA) Final Report of the Shearon Harris Emergency Exercise conducted on May 17-18, 1985. As described in the Enclosure, FEMA has identified a number of apparent offsite deficiencies to which your attention is directed.

We encourage you to assist the State of North Carolina and Harnett County to resolve the deficiencies identified by FEMA. Resolution of these items should be completed prior to the next full scale emergency preparedness exercise.

We also encourage you to work closely with the State of North Carolina and Harnett County in the development of the scenario for the next full scale exercise that will effectively test those areas in which the previous deficiencies were disclosed.

Your cooperation in this matter is appreciated.

Sincerely,

David M. Verrelli, Chief
Reactor Projects Branch 1
Division of Reactor Projects

cc: R. A. Watson, Vice President
R. M. Parsons, Project General Manager

bcc: NRC Resident Inspector
Document Control Desk
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Federal Emergency Management Agency

Washington, D.C. 20472

AUG 7 1985

MEMORANDUM FOR: Edward L. Jordan
Director, Division of Emergency Preparedness
and Engineering Response
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission

FROM: Richard W. Krimm
Assistant Associate Director
Office of Natural and Technological
Hazards Programs

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SUBJECT: Interim Findings on Offsite Radiological Emergency Response (RER) Plans and Preparedness for the Shearon Harris Nuclear Power Station

The Shearon Harris Nuclear Power Station is located in the extreme southwest corner of Wake County, North Carolina, approximately 16 miles southwest of Raleigh. The State of North Carolina and Wake, Chatham, Harnett and Lee Counties, which are located in the 10-mile plume emergency planning zone (EPZ), have developed RER plans and have participated in the first full participation exercise conducted May 17-18, 1985.

Attachment # 1 is a copy of the exercise evaluation report for the May 17-18, 1985, full participation exercise. The exercise report, dated June 28, 1985, was prepared by the Federal Emergency Management Agency (FEMA) Region IV and transmitted to FEMA Headquarters on July 9, 1985.

No Category A deficiencies were identified during the exercise. However, there were five NUREG-0654/FEMA-REP-1, Rev. 1, deficiencies observed during the exercise that require a schedule of corrective actions. These deficiencies, which are typically classified as Category B deficiencies, can be corrected through training and additional resources. These deficiencies did not detract from the overall capability demonstrated by the State of North Carolina and Wake, Chatham, Harnett, and Lee Counties to protect the health and safety of the public in the event of a radiological emergency.

FEMA Region IV staff will furnish a copy of the exercise report to the State of North Carolina and will obtain a schedule of corrective actions. The Region will assure completion by the State of the neccessary corrective actions.

The FEMA Region IV Regional Assistance Committee (RAC) has completed a review of the North Carolina Emergency Response Plan (Rev. 1., dated September 3, 1984) which consists of the four local plans including the changes incorporated through April 1985.

~~# 25 FR 1985~~

Official Copy

Attachment # 2 is a copy of the FEMA Interim Findings on the adequacy of offsite RER Plans for the Shearon Harris Nuclear Power Station. The Interim Findings Report, dated June 12, 1985, was prepared by FEMA Region IV and transmitted to FEMA Headquarters on June 18, 1985. A copy is being forwarded to the State of North Carolina for their use in upgrading the offsite RER Plans for the Shearon Harris Nuclear Power Station.

Based on a review of the above information, FEMA finds that the State and local emergency plans are adequate and capable of being implemented, and the exercise demonstrated that offsite preparedness is adequate to provide reasonable assurance that appropriate measures can be taken to protect the health and safety of the public living in the vicinity of the Shearon Harris Nuclear Power Station in the event of a radiological emergency.

If you have any questions on the above, please contact Mr. Robert S. Wilkerson, Chief, Technological Hazards Division, at 646-2860.

Attachment
As Stated

Attachment # 1

Federal Emergency Management Agency

Region IV 1371 Peachtree Street, NE Atlanta, Georgia 30309

July 9, 1985

MEMORANDUM FOR: RICHARD W. KRIMM, ASSISTANT ASSOCIATE DIRECTOR
OFFICE OF NATURAL AND TECHNOLOGICAL HAZARDS
PROGRAMS / SL-NT

FROM: Major P. May,
Regional Director

SUBJECT: Shearon Harris Nuclear Station Exercise Report

Attached are two copies of the exercise report for the Shearon Harris Nuclear Station Exercise conducted May 17-18, 1985.

Based on a review of the attached report and the recommendation from the Natural and Technological Hazards Division Chief dated June 18, 1985, this office concurs that the off-site preparedness is adequate to provide reasonable assurance that appropriate measures can be taken to protect the health and safety of the public living in the vicinity of the site in the event of a radiological emergency.

The report was distributed to the Regional Assistance Committee and to the exercise evaluators. Minor changes were made which are incorporated in the enclosed report.

Please notify us when the report is transmitted to the Nuclear Regulatory Commission so that final copies may be sent to the State.

Enclosures

SHEARON HARRIS NUCLEAR STATION

EXERCISE

Conducted on May 17-18 1985

FEDERAL EMERGENCY MANAGEMENT AGENCY REGION IV

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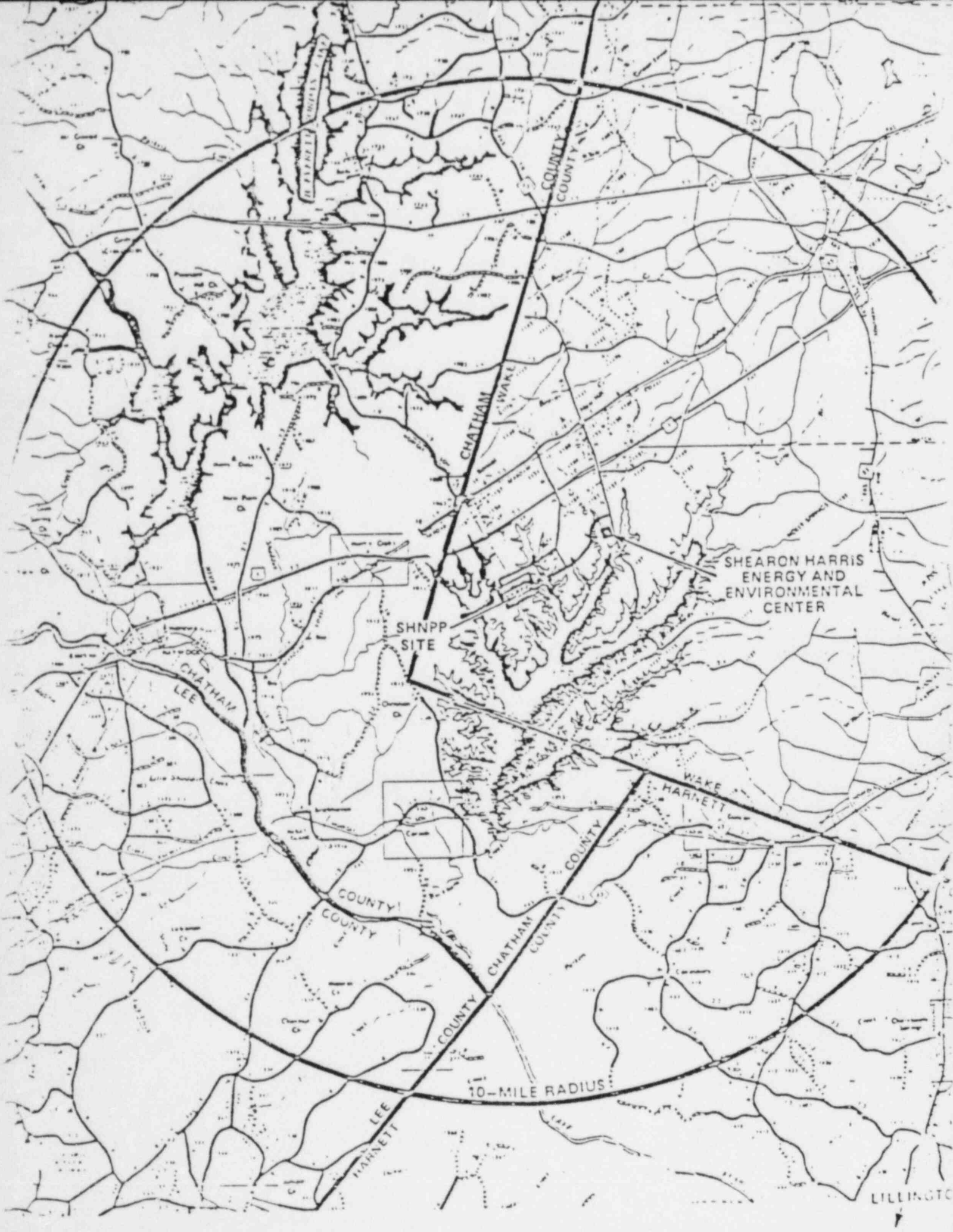
SHEARON HARRIS
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LILLINGTO

Revision 2

CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANT

EMERGENCY PLAN

INGESTION EXPOSURE PATHWAY
50-MILE EPZ

FEBRUARY 1984 FIGURE 1.5-1

CONTENTS

1 EXERCISE SUMMARY 1

1.1 State Emergency Response Team Headquarters 1
1.1.1 Accident Assessment 1
1.1.2 Dose Assessment 2
1.2 Emergency Operations Facility 2
1.3 Media Center 2
1.4 Mobile Radiological Laboratory 2
1.5 Radiological Monitoring Teams 2
1.6 Wake County 3
1.6.1 Emergency Operations Center 3
1.6.2 Outside Activities 4
1.7 Chatham County 4
1.7.1 Emergency Operations Center 4
1.7.2 Outside Activities 4
1.8 Lee County 5
1.9 Harnett County 5
1.9.1 Emergency Operations Center 5
1.9.2 Outside Activities 5
1.10 Traffic and Access Control 6
1.11 Fire Activity 6

2 DETAILED DISCUSSION 7

2.1 State Emergency Response Team Headquarters 7
2.1.1 Accident Assessment 8
2.1.2 Dose Assessment 9
2.2 Emergency Operations Facility 10
2.3 Media Center 11
2.3.1 Deficiencies Noted 13
2.3.2 Suggestions for Improvements 13
2.4 Mobile Radiological Laboratory 14
2.5 Radiological Monitoring Teams 14
2.6 Wake County 15
2.6.1 Emergency Operations Center 15
2.6.2 Outside Activities 19
2.7 Chatham County 20
2.7.1 Emergency Operations Center 20
2.7.2 Outside Activities 21
2.8 Lee County 22
2.8.1 Emergency Operations Center 22
2.8.2 Outside Activities 22
2.9 Harnett County 24
2.9.1 Emergency Operations Center 24
2.9.2 Outside Activities 25
2.10 Traffic and Access Control 27
2.10.1 Harnett County 27
2.10.2 Lee County 27
2.10.3 Wake County 28
2.10.4 Chatham County 29
2.11 Fire Activity 30

CONTENTS (Cont'd)

3 SUMMARY LISTING OF DEFICIENCIES 31

APPENDICES 32

1 EXERCISE SUMMARY

This was a full-participation licensing exercise conducted on May 17-18, 1985, and was observed by 21 Federal evaluators representing four Federal agencies. The evaluation was based on 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."

The objective of the exercise was to test all major elements of the North Carolina Emergency Response Plan in Support of the Shearon Harris Nuclear Power Plant, from initial notification through protective actions. This objective was accomplished. The few deficiencies observed in the exercise can be corrected through additional training and the acquisition of additional equipment.

The following is a brief summary of the Federal evaluators' reports regarding the involved State and county facilities and activities.

1.1 STATE EMERGENCY RESPONSE TEAM (SERT) HEADQUARTERS

The SERT headquarters activities were conducted from the State Emergency Operations center (EOC) in Raleigh. All of the amenities expected in the State EOC were available. State agency and county participation in briefings and communications capabilities were excellent.

1.1.1 Accident Assessment

The Radiation Protection Section (RPS) of the Department of Human Resources at SERT was very effective and thorough. The RPS recommendations for protective actions were timely, appropriate, and founded on a technical basis. The section provided excellent support for SERT.

1.1.2 Dose Assessment

Dose assessments, both primary and backup calculations, were performed promptly and correctly. Some telecommunications difficulties were encountered in transmitting the dose projections to SERT.

1.2 EMERGENCY OPERATIONS FACILITY (EOF)

The State deployed four persons to the licensee's EOF. These individuals interfaced directly with the Carolina Power & Light (CP&L) emergency response team, and this interface enhanced the overall coordination and communications between the utility and the State.

1.3 MEDIA CENTER

Effective, coordinated use of the emergency broadcast system (EBS) was not achieved. Rumor control was not adequately coordinated and managed. There was not a usable system to respond to telephone queries from the media. The physical layout and use of the space for the public information staff and the media were not efficient. The scenario activity failed to adequately test the public information staff.

1.4 MOBILE RADIOLOGICAL LABORATORY

In this exercise the mobile laboratory was used strictly for communication and coordination of field team activities. Communication with the field teams, the State EOC, and the EOF worked well; coordination of field monitoring team sampling activities was good.

1.5 RADIOLOGICAL MONITORING TEAMS

The field teams performed adequately; however, some additional training and expanded standard operating procedures (SOPs) would be beneficial.

1.6 WAKE COUNTY

1.6.1 Emergency Operations Center

The management and staff were knowledgeable and dedicated. Public officials participated. EOC management improved as the exercise progressed. The decision to activate sirens occurred 47 minutes after the Site Area Emergency was issued. This delay resulted in a message from the plant announcing the Site Area Emergency but ordering no protective action. The EOC manager called for clarification but received none from the plant or from the SERT. The manager should have followed SOP and issued a siren order much earlier. Management during the second day improved considerably and was effective, more decisive, and more aggressive.

First-day briefings were timely, but information flow was only from the operations manager to staff. During the second day a two-way flow of information was established, and this allowed the staff to be more active. This is believed to be an important improvement.

Message logs were kept, but the system can use improvement. Access to the EOC was excellent.

Communications capability was established during the exercise. Some difficulties were initially experienced in establishing a conferencing network. Installation of a dedicated network in the EOC could resolve some problems. Initial activation and verification of the emergency broadcasting system need improvement, which was made during the course of the exercise. Lengthy delays were experienced in receiving hard-copy messages, and equipment did not function at all between the Media Center and Wake County EOC.

Information was not released early in the emergency, prior to activation of the media center. Little information was available to the EOC staff regarding what the public was being told during the entire exercise. Finally, with respect to information, some improvements are needed in rumor-control procedures.

1.6.2 Outside Activities

One fully operating shelter was evaluated. Two shelters were observed that were staffed but not fully activated. One decontamination center for personnel and vehicles was also operated.

All staff members were dedicated, knowledgeable, and well trained. There was strong participation by all organizations present.

All facilities were well selected and thoughtfully laid out, and personnel were very aware of procedures and responsibilities. Provisions for wheelchair-bound and nursing-home residents were present.

At the decontamination center for personnel and vehicles, the staff was well-prepared. Personnel were familiar with instrumentation, exposure control, and had thought through the implications of their actions; e.g., personnel were prepared to impound the grassy area containing vehicle washdown if the vehicles had been contaminated.

1.7 CHATHAM COUNTY

1.7.1 Emergency Operations Center

The Chatham County EOC was adequately staffed and supported by elected officials. With additional training and corrections in procedures and equipment (known by the staff), an emergency can be effectively handled.

1.7.2 Outside Activities

The activation and operation of the shelter were adequately demonstrated. The radiological monitoring and decontamination could be improved by additional training.

1.8 LEE COUNTY

The EOC operations exceeded expectations for a first exercise. Both the facilities and operations management were excellent. The County has already recognized areas for fine tuning. These include message handling, an individual to explain plant and radiological conditions, and an individual to handle miscellaneous staff functions currently assigned to the Director. The Lee County field-response operations were, in general, conducted very well. Traffic and access control, route alerting, and the activation and operation of the reception center were outstanding. It is recommended that volunteer fire personnel receive additional training in exposure control and decontamination.

1.9 HARNETT COUNTY

1.9.1 Emergency Operations Center

Emergency-response operations at the Harnett County EOC were conducted in an exemplary fashion despite somewhat difficult physical conditions relating to facility layout, available space, and communications. Management was effective and thorough, and the full participation of elected officials in appropriate decision making is to be commended. The EOC staff members showed themselves to be a dedicated and cohesive group.

1.9.2 Outside Activities

In the sheltering demonstration, participation at both schools was excellent. Although most players were knowledgeable, a need exists for coordination between agencies.

1.10 TRAFFIC AND ACCESS CONTROL

The Shearon Harris exercise adequately tested the transportation portion of the plan and fulfilled the stated exercise objectives.

- Traffic control points and road blocks in Wake County were manned by a sufficient complement of State Highway Police and Sheriff's Police.
- The police were very well trained and performed well in most functions, especially familiar police functions and procedures.
- Some officers were uncertain as to relationship between radioiodine exposure and use of potassium iodine (KI).
- The distribution of dosimeters to persons entering the emergency planning zone (EPZ) was done at command posts pursuant to written instructions instead of at road blocks as called for in the county plan. This modification is probably an improvement, although it was not in accordance with the county plan at the time of the exercise.
- The system of identifying road blocks and traffic control points should be changed so that a road block and a traffic control point cannot have the same identification number.

Traffic and access control personnel in Chatham County were knowledgeable about evacuation routes, location of shelters, and worker exposure requirements. The traffic and access control activities were adequately demonstrated.

1.11 FIRE ACTIVITY

An onsite fire drill provided an opportunity for one offsite fire department (from Holly Springs) and the onsite fire brigade to combine efforts in extinguishing a simulated fire. The offsite department responded promptly, was admitted quickly to the plant, and reported to the brigade officer with proper turnout gear for assistance in controlling the simulated fire. The drill was an indication of effective preplanning and training.

2 DETAILED DISCUSSION

2.1 STATE EMERGENCY RESPONSE TEAM (SERT) HEADQUARTERS

The State emergency response team operated from the State Emergency Operations Center in Raleigh. This arrangement is due to the nearness of SERT to the Harris plant, a situation that provides for a rapid mobilization of equipment and staff.

Two hundred and twenty individuals, representing 28 State departments or agencies and other organizations (Red Cross, Salvation Army, Civil Air Patrol), participated in the exercise at the SERT headquarters.

Good support was provided by elected and appointed officials. The secretary and assistant secretary of the Department of Crime Control and Public Safety, the State Insurance Commissioner, and commissioners from the counties were present throughout the exercise.

The emergency operations management and leadership displayed in the SERT headquarters were excellent. Briefings were conducted in a timely manner and were very effective. A good exchange of information took place among SERT agencies.

Coordination between the Director of the Division of Emergency Management and the Chief of the Radiation Protection Section was prompt and effective. Proper recommendations and decisions were made based on information available to the decision makers.

Coordination with counties in the 10-mile emergency planning zone was effective. All briefings were provided to counties directly by way of speaker phones. Each county coordinator was provided an opportunity to comment and ask questions at the conclusion of all briefings.

The facility and space provided were excellent. Communications facilities and capabilities are outstanding. SERT headquarters security and badging were also outstanding.

The exercise demonstrated that control mechanisms and structure were well planned and executed.

2.1.1 Accident Assessment

Activation of SERT's radiation protection section was timely and effective, with staff arriving at the State EOC (SEOC) from their normal daily duty station by 1308. The RPS section at SEOC was well-staffed with communications, assessment, and operations functions. The staff was knowledgeable and well-trained.

The RPS representative at SERT effectively screened and transmitted radiological and plant data to the SEOC operations group. His briefings were thorough and accurate and avoided technical jargon. He actively participated, as appropriate, in SEOC decisions on protective actions.

The RPS facilities at the SEOC are adequate, although a relocation of the operations group to a location more central to communications and assessment would facilitate communications and message flow. Message handling was generally adequate, although preprinted data logs for plant and assessment data were not available to facilitate accurate recording of large amounts of incoming data.

Communications were excellent, with radio and telephone links to CP&L, the mobile laboratory, and survey teams.

Radiological and plant data were readily obtained from CP&L with no apparent delays or omissions.

The RPS recommendations for the public and emergency workers were timely, appropriate, and technically founded.

Suggestions for Improvements (other than deficiency corrections)

1. The RPS operations should be relocated to a location central to communications and assessment to facilitate information flow.

2. Preprinted data/message logs for incoming plant and radiological data should be used to facilitate accurate recording of large amounts of data.

2.1.2 Dose Assessment

Dose assessments were capably performed using both State and utility computer programs. The utility program served as a backup to and as a check on the State program. Calculations of projected dose rates and allowable "stay times" at traffic control points (TCPs) were performed. This type of calculation could be used to assess population doses. There were some problems in communicating the dose-assessment data to SERT via telecommunications. During most of the first day and early in the second day, this system functioned poorly and delayed the sending of computerized data files for as much as a half-hour. Also, the coordinates of the TCPs were not tabulated and had to be measured off the 10-mile EPZ map. This delay led to unnecessary but brief (10 minutes average) delays in the TCP calculations.

Deficiency Noted

Dose assessments were sent to the SERT from the Dose Assessment Office via telecommunications (0.4.b). During most of the first day and early in the second day, this system functioned poorly and delayed the sending of computerized data files for as much as a half-hour. It appears to be a training rather than an equipment problem.

Suggestion for Improvement

The coordinates of the TCPs and other locations where dose projections might be needed should be tabulated.

Superior Item

The State used a computer program written by its staff and also used a computer program written by the utility as a crosscheck on the validity of its calculations.

2.2 EMERGENCY OPERATIONS FACILITY (EOF)

The State deployed four persons to the licensee's EOF. Although these individuals were not senior State decision makers and were not directly responsible for performing accident assessment analyses, their presence and actions effectively enhanced the overall interface between the utility and the SERT. One representative of the North Carolina Emergency Management Agency worked directly with the utility's emergency director; the other three State representatives provided technical support to the North Carolina Division of Radiological Health. Their responsibilities included coordinating the State field monitoring teams with the licensee's monitoring teams and following and reviewing the licensee's accident assessment analyses.

Communications available in the EOF include commercial land lines, a dedicated telephone to the SERT, and radio communications from the EOF to the State's mobile van. All three systems effectively moved both administrative and technical information, and no hardware problems were experienced. Overall, the flow of technical information from the EOF to the SERT was accurate and rapid. These data allowed the Radiation Protection Section at the SERT to perform an independent accident assessment in a timely fashion.

The licensee's EOF is a "hardened" facility and is more than adequate to effectively manage an onsite emergency. The State emergency-response personnel at this facility interfaced directly and worked well with the utility's emergency-response personnel, a situation that contributed to the overall effectiveness of emergency management during the exercise.

The State is also commended for its use of qualified technical volunteers from an academic and private resource base, demonstrating how useful these volunteers can be in the event of a real emergency in the State.

2.3 MEDIA CENTER

The physical layout of the Joint Information Center (JIC) contributed directly to inadequacies in the coordination of public information activities among the utility, State, and county government staffs. The public information staffs were separated from each other, and it was necessary to hand-carry information from office to office in order to coordinate news releases or simply relay information about each other's status. This liaison system did not always work. In more than one instance the utility staff had current information, which the State and county staffs did not have, and vice versa. This lack of identical information among the various information staffs resulted in at least one inaccuracy in a news release, although not a serious inaccuracy.

Additionally, the Media Briefing Room and media workspace were located in a building separated from the JIC, and the Media Building could only be reached from the JIC by walking on city sidewalks and across a parking lot. The potential for "ambush" interviews, as spokespersons moved from the Public Information Staff Building to the Media Building, was therefore great. In this setup, only one telephone was available for calling and receiving calls at the media briefing area (for PIOs to use).

During this exercise, no PIOs were available to the reporters except during the media briefings and immediately thereafter. For literally hours, the reporters were left to themselves.

Visual aids for the plant, although available, were not used at all. The 10-mile EPZ map was under-utilized during briefings on evacuation progress.

There was not a usable system to respond to telephone inquiries from the media. Media were given several telephone numbers to reach State and county PIOs,

another number for the utility PIOs. Because of the separation of the staffs, no one of the information staffs would have been able to respond effectively to a telephone interview. All State and county phones designated for incoming media calls were multibutton sets located on one, crowded table.

No hard-copy transmission capability was on hand in the State and county government public information staff area, although the utility did have a telecopier in its workroom.

Pertinent information about the simulated accident and, in particular, the State and county response to it, was not made public in a timely manner in all cases. For instance, the statement ordering early evacuation of boaters on a lake was not made publicly known (except to the boaters) for hours after it was released. (General evacuation of several zones was not ordered until later in the exercise; the early lake evacuation therefore required prompt explanation to avoid panic and spontaneous evacuation of the residential zones.) Weather data were not promptly and continuously provided (as the data would affect a potential plume). The public announcement of the escalation to General Emergency was not made until almost an hour after it was declared.

The rumor-control function was not adequately coordinated and managed. No effort was observed to insure periodic contact with rumor-control phone operators, and there was no method observed of coordinating the utility's rumor staff with the State staff (G.4.c.)

Before the State emergency-response team assumed control, there were some indications that procedures for activation and use of the EBS needed attention. Even after the SERT assumed control, the initial instructions to evacuate certain zones and take shelter in others were incomplete; subsequent use of the system to provide adequate coverage of the area was never realized. Instructions to the public were prepared for only two of the three siren activations, and one of these messages was incomplete (G.4.b).

It is especially noteworthy that, had the events of the scenario been real, a large influx of media into Raleigh and an enormous load of telephone inquiries would have been inevitable. Yet, actual testing of the public information capability of the staffs to respond to such demands was virtually nonexistent during this exercise. Only a handful of area media were represented at the media briefings, and the reporters asked very few questions and tended to report the exercise as a news event rather than a simulated accident. There were less than a dozen telephone inquiries from media into the State and county staff room, and, here again, the inquiries were concerned with the exercise as an event. Without either simulated reporters in the briefings or controller phone calls simulating those from reporters, or both, there is little realism in an exercise such as this for public information staffs.

2.3.1 Deficiencies Noted

1. Management and coordination of the rumor-control function were inadequate (G.4.c).
2. Use of the EBS was incomplete and ineffectively managed (G.4.b).

2.3.2 Suggestions for Improvements (other than deficiency corrections)

1. Lead public information offices from the utility and from the State, Federal, and county governments should be located together in one work room, where information sharing would be constant.
2. Media briefing space should be located in the same building in which the public information staffs work.
3. More effective, usable telephone systems and procedures need to be developed to handle rumor control and incoming media calls.

2.4 MOBILE RADIOLOGICAL LABORATORY

In this exercise the mobile laboratory activity was limited to relaying communications to the field teams and directing them to take air samples at predetermined locations. The laboratory was set up at a State Department of Transportation (DOT) maintenance garage.

The mobile laboratory was activated in a timely manner and had extensive communication facilities including a State radio, police radio, mobile and fixed telephones, UHF radio, and CB radio. Communications generally worked well, and the staff used the facilities effectively.

The staff members of the mobile laboratory all had health-physics backgrounds and were well-trained. Round-the-clock staffing capability was demonstrated by presentation of a list with home and work phone numbers of extra personnel. All personnel listed have been trained to handle a number of different functions in the mobile laboratory. Direction of the field teams was well-handled by the field team coordinator, and the teams were always in good position to take samples. There was also good discussion among staff members and good anticipation of possible problems by the field team coordinator.

A slight problem with communication between one field team and the mobile laboratory developed during the second day of the exercise. The problem was rectified by relaying messages through the EOF.

2.5 RADIOLOGICAL MONITORING TEAMS

Members of the field monitoring teams were mobilized from their work places in a timely fashion. The State has equipment to staff only two teams. Equipment for an additional team, as well as backup equipment, is desirable. Items of the team's equipment differ from those listed in the plan; the State is aware of this difference and plans to update the equipment list. The equipment the State teams have is state-of-the-

art except for two low-volume air samplers. Both samplers were last calibrated in January 1984.

Team members in general were adequately trained; however, additional training in the use of the low-volume air sampler is needed. One team used the sampler once and determined an air-flow rate of 1.7; the next time the same sampler was used, it showed a reading of almost 3.5. The team taking the sample never questioned this change. Written SOPs were available but generally not used. Data-sample labeling followed SOPs but did not include the flow rate. Any change in flow rate from sample to sample, such as the one noted above (1.7-3.5), would affect the analysis of the sample taken.

One field team had problems communicating with the mobile laboratory on the second day. This team was able to overcome the problem by relaying information. The teams had adequate exposure control.

The scenario did not fully demonstrate the State's capability to track a plume or the team members' capability to deal with elevated readings and exposure control. Both of these problems were due to the compressed exercise scenario. The team members had only one hour to demonstrate their technical capabilities once the release began.

2.6 WAKE COUNTY

2.6.1 Emergency Operations Center

Generally, the activation and staffing functions that were tested were found to be well-performed. Before the Alert was received, only the emergency management coordinator (EMC), his assistant, and a handful of EOC staff were present. Within minutes of receipt of the Alert, calls alerting 16 agencies were made. A Sheriff's Police lieutenant placed calls to his people. Other calls were placed by the EMC and his assistant. A roster showing a primary EOC staff member and three alternates for that primary member was used. The alternates would be used for new shifts. Saturday

morning, the EOC was fully staffed at 0700. Friday, the EOC fully staffed at 1400. Calls were placed over a 15-minute interval, tying up the EMC and his assistant. It is felt that an improvement would be for the activation calls to be delegated, allowing the EMC to direct operation of the EOC during the early phase of the Alert.

Generally, the staff of the EOC displayed adequate training and knowledge. The agency personnel were well aware of their responsibilities.

Management and staff members performed their tasks in a dedicated fashion. Management was performed by the county manager and the assistant county manager. Initially, certain aspects of management needed improvement; however, many of these aspects were improved during the second day's activities.

One of the largest problems encountered in the Wake County EOC was that the Site Area Emergency was received at 1450 on the first day, yet sirens were not sounded until 1537. The plant actually announced the Site Area Emergency but did not issue a protective action order. The manager sought clarification from the plant (after the State controller indicated the problem) but received no response to his calls for clarification. The manager should have followed SOP describing siren and EBS coordination during a Site Area Emergency.

Initially, many of the staff members were not involved in decision making. However, this improved later during the exercise. Briefings were held, but information moved only from the operations manager to the staff. For example, the Red Cross (mass care) should have been made aware of activation of traffic and access control steps undertaken. The second day's staff did participate in several briefings. This change improved operations.

Staff members had copies of SOPs for each position, and each member was told to review them when the Site Area Emergency was declared.

Message logs were kept, but the system was not efficient. Messages were received by the communications officer and one staff person. Both had separate logs.

One log was official, the other was not. These two communications personnel should be located near each other but were not.

Facilities at the Wake County EOC were adequate, and EOC staff members operated in close but workable quarters. There were sufficient amounts of furniture, lighting, and telephones. Resource maps were available for observing evacuation routes, relocation centers, access and traffic control locations, and population of the area. The EOC lacked an EPZ map with sections labeled by wind direction. Backup power is available in the building.

Although the EOC layout worked well for staff members, it could be improved for senior operating and management personnel; those senior officials did not have a designated location where they could calmly confer. During the exercise, many decisions were made and much information was presented during impromptu meetings held all over the EOC.

A status board was available. After the declaration of the Site Area Emergency, however, it was largely ignored through the remainder of the first day; messages were not recorded on it. This oversight was corrected during the second day, when emergency classification notices were posted.

Security control was excellent.

The Wake County communications capability was established during the exercise. However, some problems were experienced. The conferencing capability, which should allow the State and all counties to confer, could not conveniently be established. The telephone numbers for some facilities were not dedicated and would be busy, thereby adding lengthy delays in establishing the net. Once all parties were on a conference call, keeping an open line helped to eliminate the delays in getting all parties on line.

The mechanics of activating the EBS necessitated terminating a conference call then in progress. This presented numerous problems.

The future installation of a dedicated ring-down telephone network in the EOC promises to resolve these noted problems for conferencing. However, EBS activation needs to be reviewed and streamlined. Improved communications with EBS might be a consideration. Activation of the EBS did improve as the emergency continued.

A hard-copy capability was available, but not functioning, between the Media Center and the Wake County EOC. Lengthy delays were experienced between the receipt of hard copy at either of the two offices and the time when the information became available to the staff of that office.

EBS

Verification of the EBS was not managed effectively through the use of established plans. We suggest introducing radio and television into the EOC to allow on-site monitoring; we also suggest designating appropriate staff members, in an SOP, to do that monitoring. During the second day, radios were available, and the deputy PIO did monitor stations for EBS messages.

Public Alerting

Information provided to the public was not made available to all members of the EOC staff. Although the EOC management was kept advised of the information, the information was not posted or distributed to the rest of the EOC staff.

Rumor-control procedures were not established during the exercise, and staff training in this area of operation is needed.

In the early stages of the exercise emergency, information releases were not developed by the County. Information was not made available to the public via the media about the Wake County response activities that were underway. In an emergency, Wake County does have responsibilities in public information prior to the activation of the Media Center.

Suggestions for Improvements

1. The rumor-control program should be given additional emphasis.
2. A dedicated telephone communication network in the EOC should be installed.
3. The EBS procedures should be improved.
4. Hard-copy capability between EOC and Media Center should be improved, and the information received in this manner at either office should be quickly and efficiently disseminated to each office staff member.
5. The County should take a more active role in public information in the early stages of an emergency, prior to establishing the Media Center.

2.6.2 Outside Activities

One fully operating shelter was evaluated. Two shelters were observed which were staffed but not fully activated. One decontamination center for personnel and vehicles was operated.

All staff members were dedicated, knowledgeable, and well trained. There was strong participation by all organizations present.

All facilities were well-selected and thoughtfully laid out, and the personnel staffing them were very aware of procedures and responsibilities. Provisions for wheelchair-bound and nursing-home residents were present.

At the area of decontamination of personnel and vehicles, the staff was well-prepared and adequate in number. Staff members were familiar with instrumentation and exposure control and had thought through implications of their actions; e.g., personnel were prepared to impound the grassy area containing vehicle washdown if the vehicles had been contaminated.

Suggestions for Improvements

1. At the vehicle decontamination station, official record logs should be available. (A sheet or a clipboard was used at this exercise.)
2. The personnel decontamination plan should be updated to note whether a contaminated individual should be sent to a hospital, or whether any other action should be taken, after a second or third shower has failed to decontaminate the person.

2.7 CHATHAM COUNTY

2.7.1 Emergency Operations Center

The EOC of Chatham County was activated with an adequate staff from supporting agencies and including elected officials. Proper supervision was exercised and control maintained. Physical facilities are marginal in terms of area and equipment. Status boards and maps with zones, evacuation routes, shelter locations, traffic control points, and decontamination posts were properly displayed. A map or overlay with degrees is needed, however, to plot the plume when one is present. Communication with other agencies was adequate. A hard-copy machine was available; however, procedures for receiving incoming messages were not satisfactory. The transmission of messages seemed to be adequate. Public notification was well-planned and, with the exception of one radio station failing to comply with EBS procedures, well-executed. Evacuation procedures were demonstrated by the processing of a number of "evacuees" through one shelter.

Suggestions for Improvements

1. Steps should be taken to control noise in the center.
2. More telephones should be installed for use of the agency representatives.

3. Internal message distribution should be improved.
4. More briefings should be conducted, and they should include agency representatives.
5. Maps or overlays with degrees should be available for plotting the plume.
6. More activity for participating agencies should be provided.

Superior Item

The Chatham County EOC director did an outstanding job, especially considering that this was his first exercise.

2.7.2 Outside Activities

The shelter was activated within a half-hour after notification. The shelter manager and chief of the monitoring and decontamination teams were knowledgeable in their areas of responsibility. The shelter was staffed by seven organizations; 31 people were present to perform the sheltering functions. The registration and handling of evacuees were adequately demonstrated. The facilities are excellent, but the ability of the shelter to serve 2028 evacuees (assumed capacity) should be reviewed. The rate at which evacuees would arrive should be established to determine the number of monitoring teams required. The proficiency of the monitoring and decontamination teams should be improved by additional training.

Suggestions for Improvements

1. Add phones to sheltering and registration area.
2. Provide hand-held radios to sheltering personnel.
3. Provide backup radiological monitoring instruments.
4. [illegible]ide a wheelchair.

5. Improve flow of information to shelter.
6. Provide additional onsite training for monitoring and decontamination teams (an improved SOP would help).

2.8 LEE COUNTY

2.8.1 Emergency Operations Center

Direction and control over the simulated emergency were handled effectively by the acting director. The EOC staff members exhibited sound training but would have benefited greatly by more dialogue with their counterparts in the State EOC. The physical facilities are excellent. These include space, room arrangement, maps/charts, and communications. The use of amateur radio was demonstrated effectively. Elected officials were present. Sirens and EBS soundings were monitored. The scenario was comprehensive, but it was not challenging for many individual agencies.

Suggestions for Improvements

1. Consider relocating the speaker phone to a less congested area.
2. A radiological defense officer (RDO) on the EOC staff would be helpful to explain radiological and plant conditions.
3. A hard-copy capability would prove beneficial between the County and the Media Center.

2.8.2 Outside Activities

The West Lee Junior High School was observed only after activation and staffing were completed. The capabilities and resources observed were excellent. Communications were available through the Radio Amateur Club, the primary communications link. Telephone, police radio, and fire department radio were available

as backup. Seven members of the fire department were available for monitoring and decontamination of evacuees. Registration of evacuees was run very smoothly. Support services in lunchroom operations, a nursing station, counseling, and other assistance were available at the reception center. Administrative staffing of the East Lee Junior High School was also observed. The center was staffed by a Red Cross coordinator, Lee County volunteer fire personnel, a county deputy sheriff, and volunteers. The staff and the coordinator were well-versed in their responsibilities at the center.

The capabilities of the decontamination team at the West Lee High School, as well as the individual administratively in charge of decontamination at the East Lee Junior High School, are very good. In discussing the rationale for the way they set up their operations, coordinators at both schools gave very good descriptions. They were very knowledgeable about good practice in monitoring and decontamination and proved they could do an excellent job. Although there are some potential problems with cross-contamination due to the space where the coordinators have to conduct their operations, they are aware of those problems and are attempting to address them. It is recommended that all areas where potentially contaminated individuals might walk be covered with a disposable floor covering (i.e., paper).

Lee County demonstrated a very well-organized congregate care center at West Lee Junior High School. A large number of volunteer workers were at that school. All necessary personnel were present and did a very good job.

In general, the evacuee monitoring and decontamination functions were much better handled than the vehicle monitoring and decontamination functions. Based on the traffic observed at the three locations for vehicle decontamination, several traffic problems could develop at State roads 1466 and 1428. Traffic would be severely congested during an evacuation; individuals might not be willing to wait for their vehicles to be checked after being told to evacuate the area. Preferable location for this activity might be the parking lots of the reception centers. Fire department personnel need more

training on vehicle decontamination to ensure they follow good practices when monitoring vehicles.

2.9 HARNETT COUNTY

2.9.1 Emergency Operations Center

Activation and full staffing of the EOC were completed in a timely fashion (one hour from declaration of the Site Area Emergency), and backup methods of staff notification are in place. The staff members demonstrated that they can act as a dedicated and cohesive group; members of the County Board, who were directly involved in decision making throughout the exercise, contributed to this integrated effort. Management of the situation by the EMC was thorough and effective, despite the fact that he often had to repeat briefings as many as four times to different groups due to the layout and noise level in the interim EOC facility. This facility was inadequate in almost every respect: insufficient furniture and space for participants, poor lighting, inefficient traffic-flow pattern, far too few telephones for a "real-world" emergency, and an excessive noise level. However, visual aids (maps and displays) were effective and visible to all staff members. In general, the players at the EOC made the very best of a bad physical situation. More phone lines should be added to enable direct communication from the EOC staff to their respective field personnel: there was excessive reliance on message transmittal through the county warning point.

Nevertheless, with the participation of the amateur radio emergency system, overall communications capabilities were good to excellent. Use of the speaker phone line needs some improvement; some transmissions had to be repeated more than once because they were garbled or the messages misunderstood. Public alerting and instruction were timely and coordinated, although the EBS message was canned. Protective actions assigned to or issued by the County were performed or simulated in a

timely and organized fashion. No media relations were conducted at the Harnett County EOC.

Deficiencies Noted

1. Physical facilities were inadequate in almost every particular (H.3).
2. There is excessive reliance on a single landline through the county warning point for backup communications with other EOCs and other facilities (F.1).

Suggestion for Improvement (other than deficiency corrections)

In general, there was excessive reliance on the amateur radio emergency system capabilities as the primary backup communications between the EOC and field locations; this level of reliance should be avoided, despite the excellent performance of personnel from the system. Also with respect to communications, the SEOC speaker phone should be isolated from those involved in other communications, due to noise level.

2.9.2 Outside Activities

A sheltering capability was demonstrated by the administrative opening of the Lillington Middle School and by the full opening of the Harnett Central High School. Two evacuees went through monitoring, decontamination, and registration and into the sheltering process at Harnett Central. Participation in both schools was excellent. Players were generally knowledgeable about their respective duties, and, since this was its first exercise, Harnett County should be commended for the competence of its personnel. Some problems were noted, however, that reflect a need for closer coordination of outside functions and better understanding by personnel responsible for them.

Problem Areas

1. Both shelter managers, as well as the Department of Social Services (DSS) representative, stated that the American Red Cross will "take over" the shelters a few days into an operation -- management, feeding, cost underwriting, etc. If this is true, agreements with the American Red Cross should be secured. If such agreements are not secured, DSS personnel should be informed of the situation so that they do not have unrealistic expectations.

2. Shelter personnel were under the impression that evacuees arriving at shelter would have been monitored, at decontamination stations on evacuation routes, and that those still needing decontamination would be identified by phone to the shelter. Specific procedures at both the decontamination stations and at the shelters need to be understood by all concerned personnel.

3. Personnel responsible for radiological monitoring at both schools were unprepared to keep personnel monitoring and decontamination records on contaminated evacuees. The Emergency Management Director stated that the forms were in prepacked kits at the shelters; however, shelter personnel indicated no knowledge of these kits.

4. The staging area (for reception, staging, and dispatch of emergency service units) is directly in front of the shelter, where hundreds of evacuees would be entering, parking, etc.; this physical arrangement would undoubtedly create confusion, traffic problems, and general chaos.

2.10 TRAFFIC AND ACCESS CONTROL

2.10.1 Harnett County

Highway transportation protection and evacuation were thoroughly exercised in Harnett County by the manning of TCPs and installation of evacuation route signs.

Public boat ramps at Harris Lake have warning signs to alert boaters of a possible emergency and to give specific instructions about what action should be taken.

Procedures for notification to air and rail carriers were exercised in accordance with the plan.

2.10.2 Lee County

Eight traffic control points were observed during the exercise, and four associated road blocks were observed. All personnel at these locations indicated familiarity with the evacuation routes and the location of reception centers. The TCPs and road blocks were manned by a combination of State Highway Patrol personnel and County Sheriff's personnel. Personnel at the control points can communicate with other control points manned by similar authorities. Several officers were asked if they knew the status of the emergency, but none of the officers had received updates on the plant status. Officers at the road blocks have authority to allow persons back in the EPZ for emergency purposes, but there are no clear criteria for the officers to use in making those decisions. As an example of the confusion caused by this lack of criteria, one officer stated that he would positively not allow anyone to enter; another stated he would make his decisions on a case-by-case basis. Materials at the road blocks were pre-positioned by the State Department of Transportation.

The route alerting was conducted at the request of the evaluator. It took 45 minutes to alert all residences along the route. This period was longer then it should have been; the officer doing the alerting realized, as the process continued, that he could

reduce the amount of time by not using the alert procedure while backtracking on certain roads. The officer was told that he did not need to demonstrate the PA and siren during the route, just that appropriate stops would have to be made to realistically assess the amount of time it would take. The officer conducting route alerting exercised good professional judgment when he began making all announcements as close to residences as possible instead of strictly following the SOP that announcements be made every quarter mile.

State Highway Patrol, Lee County deputy sheriffs, and Lee County volunteer fire department personnel were equipped with dosimeters. All State Highway Patrol officers had high-, mid-, and low-range self-reading dosimeters, a thermo-luminescent dosimeter (TLD), and well-maintained record cards. Lee County deputy sheriffs had low-range dosimeters and record cards. The record cards were maintained. The Lee County volunteer fire department personnel in some cases had low-range dosimeters or a combination of low- and high-range dosimeters. Record cards in some cases were maintained by the fire department personnel; in others only an initial reading was recorded. No Lee County personnel had TLDs.

The scenario for the Lee County EOC was not very demanding. The schedule of events was known by most parties in the County. There were even announcements on commercial radio broadcasts when the exercise would terminate. Thus, emergency management and response were not challenged. Understandably, since this is the first test of the emergency plan for the Harris plant, the scenario should not have severely challenged the County's emergency-response capability, but the schedule of events should not have been distributed as widely as it was.

2.10.3 Wake County

There was a sufficient number of traffic controllers and highway police for traffic control points, and sheriff's police for road blocks. Both groups did very well in

performing their more familiar activities. They gave accurate directions, knew what to do in the event of road obstruction, knew who to allow into the evacuation zone, knew enough to wait until commanded before taking certain actions (e.g., to take KI), and knew they should contact the command post if they had questions. Two officers tried to guess correct answers, however, and failed. One road block was not manned.

These personnel had low-range dosimeters, which were read and recorded periodically. Some of the personnel were weak in understanding the relationship between radioiodine exposure, the thyroid system, and the use of KI. Current SOP on the function of road blocks was not followed. Dosimeters were distributed at the command post for persons entering the EPZ. Some dosimeters that were expected were not received from CP&L.

Suggestions for Improvements

1. Personnel should be re-trained on the significance of radioiodine and on KI as a blocking agent. Also, health personnel should be present when KI is distributed.
2. Different identification numbers for road blocks and for traffic control points should be assigned. Both road blocks and traffic control points are identified by a "W" followed by a one- or two-digit number so that a road block and a traffic control point, possibly at different locations, can have the same identification number. This can be very confusing.

2.10.4 Chatham County

The traffic and access control activities were adequately demonstrated. The Highway Patrol was very well-trained and knowledgeable about operations. The trooper at each location had backup material and procedures to refer to if he did not know

answers to questions. The troopers kept records of their own exposure and were knowledgeable about the maximum exposure rates allowed. At the road blocks, one trooper stated he would use own judgment for re-entry of emergency vehicles.

Suggestion for Improvement

Criteria for EPZ re-entry should be established.

2.11 FIRE ACTIVITY

An onsite fire drill provided an opportunity for an offsite response of the Holly Springs Fire Department. Response time was prompt (16 minutes), and admittance through the plant gate was very satisfactory (two minutes). Six volunteer firefighters came to the site on a fire pumper and were adequately equipped with turnout gear and air masks. Timely contact was made with the fire brigade, and actions were taken to relieve the "exhausted" personnel on the hose lines. It was apparent that training and preplanning had been conducted jointly by brigade and offsite personnel. Radio communications between onsite and offsite units would increase the efficiency and capabilities of all fire departments.

3 SUMMARY LISTING OF DEFICIENCIES

The following is a summary listing of deficiencies observed during the Shearon Harris Nuclear Station Exercise.

NUREG 0654 ITEM		STATE OF NORTH CAROLINA CORRECTIVE ACTION	DATE OF COMPLETION
O.4.b.	Radiological Emergency Response Training	Training	
		Media Center	
G.4.b.	Public Education and Information	Training	
G.4.c.	Public Education and Information	Training	
		Harnett County	
H.3	Emergency Facilities and Equipment	Facility Acquisition	
F.1	Emergency Communications	Equipment Acquisition	
		Wake County	
		None	
		Lee County	
		None	
		Chatham County	
		None	

APPENDICES

A. Evaluator List and Assignments

B. Exercise Objectives and Scenario

FEDERAL EVALUATOR ASSIGNMENTS
SHEARON HARRIS NUCLEAR POWER PLANT
May 17-18, 1985

CHIEF OF EVALUATORS AND RAC IV CHAIRMAN
Glenn Woodard (FEMA)

EMERGENCY OPERATING FACILITY (EOF)
Bob Trojanowski (NRC)

STATE EMERGENCY OPERATIONS CENTER (SEOC)
John Heard (FEMA)
Anna Hart (USDA)
Dave Lassiter (DOE)

MEDIA CENTER
Jack Glover (FEMA)

RADIOLOGICAL HEALTH LABORATORY
Les Poch (FEMA)

RADIOLOGICAL HEALTH ACTIVITIES
Tony Foltman (FEMA)

RADIOLOGICAL FIELD TEAMS
Caroline Herzenberg (FEMA)
Karen Gaziel (FEMA)

MOBILE EVALUATORS
Al Hall (DOT)
Tom Hawkins (FEMA)

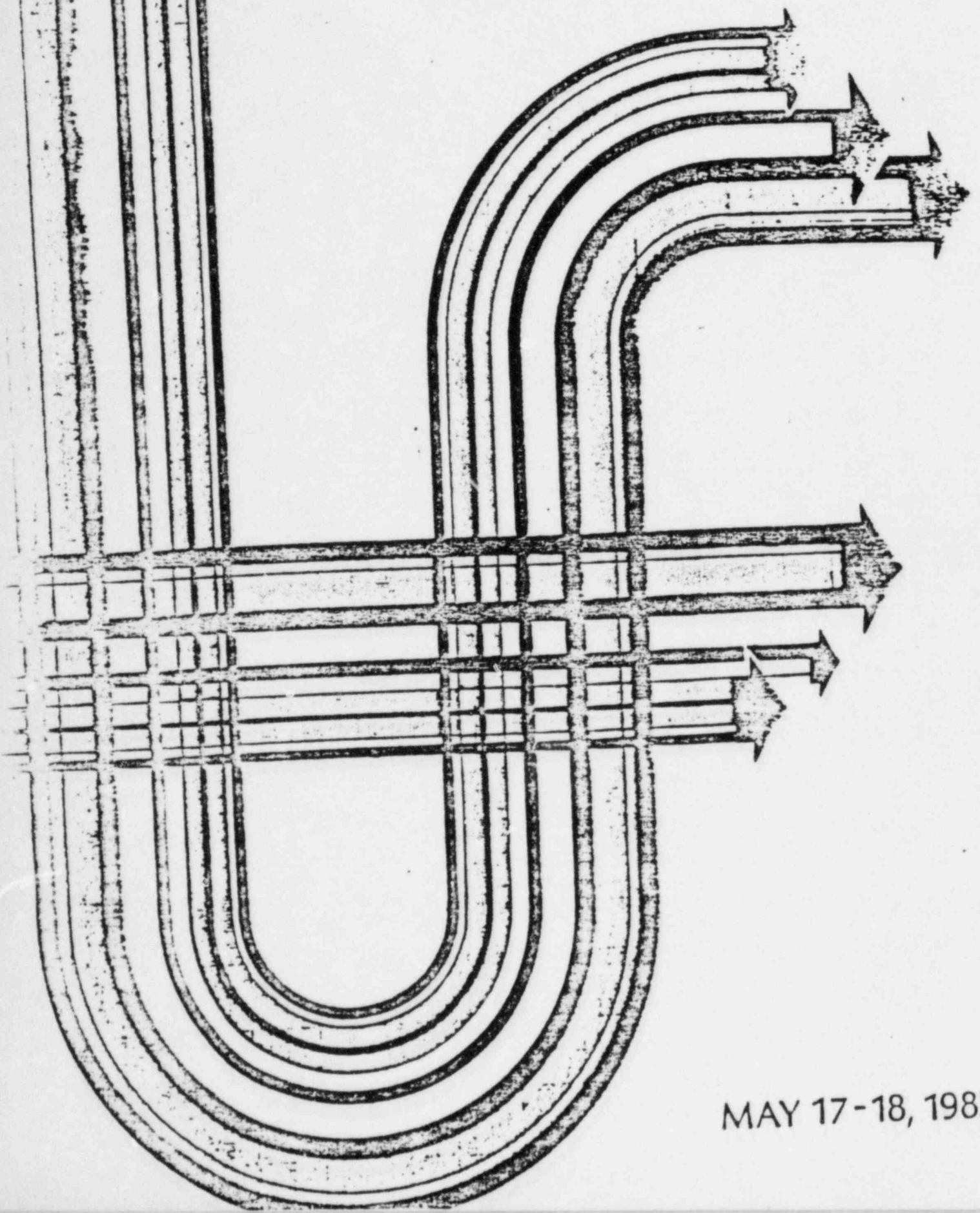
WAKE COUNTY EOC
Cheryl Stovall (FEMA)
Elliott Levine (FEMA)
Phil Kier (FEMA)

LEE COUNTY EOC
Brad Loar (FEMA)
John Tatar (FEMA)

CHATHAM COUNTY EOC
Russ Yarbrough (FEMA)
Duane Knudson (FEMA)

HARNETT COUNTY EOC
Chris Saricks (FEMA)
Virginia Baker (FEMA)

N.C. EXERCISE INSTRUCTIONS
for the
SHEARON HARRIS NUCLEAR POWER PLANT



MAY 17-18, 1985

NORTH CAROLINA EXERCISE INSTRUCTIONS FOR THE SHEARON HARRIS NUCLEAR POWER PLANT May 17-18, 1985

I. GENERAL

A. A full participation emergency preparedness exercise will be conducted for the Carolina Power and Light Company Shearon Harris Nuclear Power Plant near New Hill, North Carolina on May 17-18, 1985.

B. The exercise will consist of a simulated accident at the Shearon Harris Plant which will escalate to a general emergency and involve response, evacuation, reentry/recovery actions and ingestion pathway considerations. During the simulated emergency, an off-site radiological release will occur and require responses by off-site personnel.

II. OBJECTIVES: In accordance with NUREG 0654, the objectives of this exercise are as follows:

A. To test and assess the initiation and implementation of North Carolina's plans with respect to a radiological emergency at the Shearon Harris Nuclear Power Plant.

B. To test the ability of North Carolina to assess the impact of a radiological emergency on the public and to carry out the required alert and notification of response forces and the public.

C. To test the State and County Emergency Operations Centers (EOC) and State Emergency Response Team (SERT) with respect to:

1. Adequacy of facilities to support operations under emergency conditions.

2. Ability of the organization components to coordinate operations.

3. Adequacy of resource materials and data to assist in decision-making and plan implementation.

4. Adequacy of communications systems to maintain contact with other components of the emergency response system.

D. To test the ability of the off-site radiological procedures to accurately determine the public danger and institute appropriate protective action recommendation.

E. To test the ability of a joint news media center representing the State, local government and the utility to provide accurate and timely information.

F. To exercise medical handling and arrangements for contaminated injured individuals.

G. To exercise the State's ability to plan for reentry/recovery and coordinate such activities in the 50-mile ingestion pathway EPZ.

III. SCOPE

A. All major elements of the North Carolina Emergency Response Plan in Support of the Shearon Harris Nuclear Power Plant (hereinafter referred to as the Plan) from initial notification through protective actions will be exercised. This exercise will involve the State and affected local governments and their supporting agencies.

B. State and local staffing and the level of play will be determined by the simulated nuclear accident scenario except as identified below.

C. Evacuation will be played.

D. Local emphasis for Wake, Lee, Chatham and Harnett Counties will be:

1. Alert and notification of the public, to include use of EBS to disseminate public information.

2. Ability to assist in evacuation.

3. Capability to provide Traffic Control Points, secure evacuated areas and to perform other roles and responsibilities as identified in the local plans.

4. Test fire protection measures and medical support.

5. Exercise warning and notification procedures to alert boaters and others on Jordan and Harris Plant Lakes.

E. State emphasis will include the following:

1. The reporting of representatives from each department shown in paragraph IV, Participation, to the State EOC. These representatives comprise the SERT.

2. The dispatch of the Radiation Protection Emergency Team and mobile lab.

3. The declaration of a simulated state of disaster by the Governor.

4. The exercise of the Southern Agreement for Mutual Radiological Assistance and the supplemental agreement thereto.

5. The radiological monitoring of personnel, material, and areas and the reporting of simulated data and severity levels. Actual and simulated dosimeters will be used.

6. The recommending and executing of radiological protective actions.

7. The simulated issuance of thyroid blocking agents as appropriate.

8. The exercising of all essential communications systems and warning systems to include the actual sounding of outside warning devices in the area to be evacuated.

9. The establishing of traffic control points and maintaining a log of exercise personnel and vehicles entering and leaving designated zones.

10. The use of the Emergency Broadcast System (EBS) to disseminate public information.

11. The evacuation of personnel on a representative basis by privately-owned vehicles, ambulances, state and local government-owned buses, and military vehicles and aircraft.

12. The sheltering and feeding of evacuees in public shelters.

13. The preparation for the decontamination of personnel exposed to radiation.

14. The preparation for the decontamination of vehicles and equipment on a representative basis.

IV. PARTICIPATION

A. The following organizations are expected to participate:

1. State level:

a. The Governor or his representative.

b. State Departments and agencies as identified in the Plan.

2. County level:

a. Wake County - full participation

b. Lee County - full participation

c. Chatham County - full participation

d. Harnett unty - full participation

3. Carolina Power and Light Company

4. Other Organizations:

a. American National Red Cross

b. Radio and television stations identified as EBS

c. Amateur Radio Service

d. National Weather Service

e. Corps of Engineers

f. Team of Radiological Emergency Volunteers (TOREV) of the N.C. Chapter of the Health Physics Society

B. Players are those individuals participating in the exercise by performing the responsibilities assigned to their agency or organization in the Plan. The number and type of players will be determined by participating agencies/organizations to satisfy the requirements of this exercise. See Annex A - Player Information.

V. **MESSAGES:** To avoid the possibility of an exercise message being intercepted by personnel not involved in the exercise and an inappropriate reaction on their part, all written and oral messages will be preceded and ended with the phrase: **"THIS IS AN EXERCISE MESSAGE."** It is mandatory that this phrase be used in all voice radio transmissions as well as on written messages to include the Police Information Network.

VI. **SAFETY:** All laws and safety rules shall be observed during the conduct of the exercise. During exercise missions, emergency lights and sirens should not be used and traffic rules and regulations governing vehicles should be obeyed.

If aircraft are employed, all Federal Aviation Administration rules and regulations should be obeyed and flight safety should be emphasized.

VII. PUBLIC INFORMATION:

A. All news releases to the news media, including exercise play releases, releases about the exercise as an event, and EBS will be coordinated between the counties and State Government prior to release.

B. Copies of all news releases will be provided to the Control Group.

VIII. EXERCISE ORGANIZATION: See Annex B

A. Exercise Players - See Annex A, Appendix 1

B. Exercise Control Group - See Annex C

C. Exercise Evaluators - See Annex C

D. Federal Observer Group - See Annex H

IX. EXERCISE IDENTIFICATION

A. On all vehicles used by the players while participating in the exercise, a white panel such as a white hand towel or similar cloth or tape will be attached on the driver's side of the vehicle so as not to restrict vision. The cloth may be tied to the door handle, radio antenna or below the outside rear vision mirror. Vehicles assigned to the Control Group will be marked in a similar manner using red cloth or tape. Vehicles assigned to the Evaluation Group will be marked in a similar manner using blue cloth or tape.

B. Players will wear white arm bands or shoulder loops on the left arm or shoulder. Those players entering the SERT Headquarters area must wear SERT Identification (ID) Cards previously issued. New or replacement ID Cards for SERT members may be obtained at SERT Headquarters.

C. Members of the Control Group will wear red numbered badges, arm bands or shoulder loops on the left arm or shoulder. Evaluators, including federal observers performing an evaluation function, will wear blue bands similarly.

D. Visitors will be identified with brown numbered badges or cloth.

E. Controllers and Evaluators entering the EOC SERT Headquarters area must display numbered badges prior to admittance. These badges will be provided by the Control Group.

F. Each organization is responsible for procuring panels and arm bands for its participating members.

X. ADMINISTRATIVE MATTERS - See Annex F

XI. BRIEFINGS, MEETINGS AND CRITIQUES - See Annex G

XII. TABLE TOP EXERCISE. A table top exercise will be conducted immediately after the full participation exercise. See Annex E.

XIII. DISTRIBUTION - See Annex I

Attachments:

Annex A - Player Information
Annex B - Exercise Organization
Annex C - Exercise Controllers/Evaluators
Annex D - Exercise Scenario and Schedule of Events (Limited Access)
Annex E - Table Top Exercise - Re-entry & Recovery/50-mile Ingestion Pathway Considerations
Annex F - Administrative Matters
Annex G - Briefings, Meetings and Critiques
Annex H - Federal Observers
Annex I - Distribution

NORTH CAROLINA EXERCISE INSTRUCTIONS FOR THE SHEARON HARRIS NUCLEAR EXERCISE May 17-18, 1985

Annex A - Player Information

I. GENERAL SITUATION

A. The Shearon Harris Nuclear Power Plant is being built in New Hill, N.C. about 16 miles southwest of Raleigh and about 15 miles northwest of Sanford. The plant will contain one generating unit, using a pressurized water reactor capable of producing 900 megawatts of electric power. The unit will start to produce power in 1985. Commercial operation will start in 1986.

B. North Carolina, the counties concerned and other organizations have developed the **North Carolina Emergency Response Plan in Support of the Shearon Harris Nuclear Power Plant.** The Plan establishes the procedures to be used to respond to an off-site emergency caused by an accident at the Shearon Harris Plant. Its general purpose is to protect people from radiation exposure and in a variety of accidents that could produce an off-site threat. It accomplishes this purpose by providing for the integration of State, local and Federal resources and emergency response actions into a common base to protect the health and safety of the general public.

II. SPECIAL SITUATION: The initiating action will be in the form of a message from the Shearon Harris Nuclear Power Plant. The message will be transmitted to the State Warning Point and simultaneously to the Wake, Chatham, Harnett and Lee County Warning Points. Weather data for the exercise will be canned and will be provided by the plant and the National Weather Service.

III. INITIAL REQUIREMENT. All personnel who will participate in the exercise must be familiar with the Plan and the tasks assigned to each response organization. Each organization should take actions to ensure that it is prepared to carry out its responsibilities.

IV. SUBSEQUENT SITUATIONS AND REQUIREMENTS: Subsequent situations will be announced in messages from the Shearon Harris Plant and other messages that might be injected by the Control Group. Subsequent requirements must be determined by the players in accordance with the Plan and the given situations.

V. EXERCISE PLAYERS: See Appendix 1.

NORTH CAROLINA EXERCISE INSTRUCTIONS
FOR THE
SHEARON HARRIS NUCLEAR EXERCISE

May 17-18, 1985

Appendix 1 - Annex A - Exercise Players

SERT Team Leader: Joseph F. Myers, Director

Ass't SERT Team Leader: Vance E. Kee, DCC&PS

AGENCY	FUNCTION/ACTIVITY	ASSIGNED INDIVIDUAL
	SERT Support Staff	

**********TO BE ANNOUNCED**********

NORTH CAROLINA EXERCISE INSTRUCTIONS
FOR THE
SHEARON HARRIS NUCLEAR EXERCISE
May 17-18, 1985

Annex B - Exercise Organization

I. Control Group - See Annex C.

A. The Exercise Control Group, known as Controllers, will be composed of representatives of the agencies and organizations referred to in paragraph IV, Basic Plan. During the exercise, this group will inject prewritten messages into the exercise and such additional messages within the scope and intent of the test of the local Plans.

B. The Controllers will also observe the exercise, prepare critique notes and submit written recommendations to improve the response plans and future exercises. During the exercise they will be located in the basement of the Administration Building, Room B-41.

II. Evaluators - See Annex C.

III. Federal Observer Group - See Annex H.

The Federal Observer Group will be composed of representatives of several Federal agencies who observe the exercise in a manner similar to state level evaluators. Offices for the Observer Group will be located in the Administration Building.

IV. State Contacts (Pre-Exercise) - The primary contact points at the state level are:

A. Exercise Director:	Tonia Young Div. of Emerg. Management DCCPS - (919)733-3867
B. Chief Controller:	Tonia Young, Chief Education/Radiological Br. Div. of Emerg. Management DCCPS - (919)733-3867
C. Ass't. Controller:	Al Joyner, Planner Plans Branch Div. of Emerg. Management DCCPS - (919)733-3867
D. Chief Evaluator:	Phil Riley, Deputy Comm. Div. of Fire & Rescue Dept. of Insurance (919)733-2142

E.	Ass't. Evaluator:	Gil Green, State Forrester Information & Training N.C. Forest Resources NRCD - (919)733-2162
F.	Radiological Evaluator:	Julian H. Bradberry, Jr. Health Physicist General Electric (919)343-6180
G.	Shearon Harris Plant Exercise Director:	R. G. Black, Jr. (919)836-6194
H.	Shearon Harris Plant Controller:	H. R. Goodwin (919)836-6551
I.	Public Information:	Chrystal Harris Stowe Information Services DCCPS, (919)733-5027

V. Local Level Contacts (Pre-Exercise)

A. Primary contact points at the local level are Emergency Management personnel identified below by county. These persons will be Trusted Agents. (A trusted agent is an exercise participant who, because of his assigned role in the exercise, must be entrusted with information relating to the play of the exercise which cannot be disclosed to the Players until the proper time, lest the training value of the exercise be compromised).

1.	Wake County	Russ Capps, Coordinator Wake Co. EM Agency (919)755-6245
2.	Chatham County	Mark Scott, Coordinator Chatham Co. EM Agency (919)542-2911
3.	Harnett County	Henry Johnson, Assistant Coordinator Harnett Co. EM Agency (919)897-8130
4.	Lee County	J. T. Kirkman, Coord. Sanford-Lee Co. EM Office (919)775-3941

B. During the exercise, the telephone numbers listed above may change.

NORTH CAROLINA EXERCISE INSTRUCTIONS FOR THE SHEARON HARRIS NUCLEAR EXERCISE May 17-18, 1985

Annex C - Exercise Controllers/Evaluators

I. General

A. Exercise Controllers/Evaluators are those individuals assigned to make certain that events outlined in the exercise scenario (Limited Access Document) are received for action by the appropriate agency. See Appendix 1 - Controller/Evaluator assignments.

B. This document outlines the responsibilities of the Exercise Controllers/Evaluators to insure a successful exercise.

II. Responsibilities

A. Review the Plan with emphasis on those items directly related to the agency of your Controller/Evaluator assignment.

B. Attend the pre-exercise meeting and such other meetings as identified in Annex G.

C. Maintain confidentiality of the exercise scenario (Limited Access Document) so as to not compromise the exercise.

D. Maintain contact during exercise with Controller/Evaluator Headquarters located in DEM offices in the Administration Building, Raleigh, N.C.

E. Upon receipt of the exercise scenario, each agency controller/evaluator should identify those elements or responsibilities within the Plan for the agency. List them in order of action for each event in the scenario so that you will have a checklist to insure that the agency's goals and objectives are met.

F. Provide a written evaluation report with your Exercise Worksheets to the Chief Evaluator no later than May 31, 1985.

III. Checklist - Use the following checklist as a guide for control purposes.

A. Upon arrival at your duty station each day, notify Controller/Evaluator Headquarters and verify the specific phone number at which you can be reached during the day.

Controllers/Evaluators should provide a schedule of activities if duties are in the field.

B. Since times indicated in the scenario are the times an event is injected by the plant controller, it may be necessary to allow at least 15-30 minutes for the event to be acted upon at the plant before the plant notifies county and/or state government. If an event which requires action by county and/or state government has not been received within approximately 45 minutes, notify Controller/Evaluator Headquarters.

C. Controllers/Evaluators are not to take over play of the exercise, but should use the scenario checklist (paragraph II E above) to insure adequate agency response to the event.

D. Exercise Scenario and Exercise Worksheets (Limited Access Documents) will be provided to controllers/evaluators only.

Appendix 1 - Controllers/Evaluators Assignments

NORTH CAROLINA EXERCISE INSTRUCTIONS
FOR THE
SHEARON HARRIS NUCLEAR EXERCISE
May 17-18, 1985

Appendix 1 - Annex C - Controllers/Evaluators Assignments

Chief Controller: Tonia L. Young, DCC&PS

Ass't Chief Controller: Alvin H. Joyner, DCC&PS

Chief Evaluator: TBA

Ass't Chief Evaluator: TBA

AGENCY	FUNCTION/ACTIVITY	ASSIGNED INDIVIDUAL
	CONTROL	

**********TO BE IDENTIFIED LATER**********

NORTH CAROLINA EXERCISE INSTRUCTIONS
FOR THE
SHEARON HARRIS NUCLEAR POWER PLANT
May 17-18, 1985

Annex D - Exercise Scenario and Schedule of Events

TE	TIME	(Item)	EVENTS
-85	1100	1	Steam leak causes a ground in cable tray above the auxiliary feed pumps which causes a fire.
	1108	2	UNUSUAL EVENT DECLARED. Initial notification to offsite authorities.
	1110	3	Offsite fire assistance requested. Apex Volunteer Fire Department to respond. Auxiliary feedwater pump inoperable due to isolation of steam leak.
	1200	4	ALERT DECLARED. Notification to offsite authorities. Alert and notification plans to responding agencies implemented. Minimum staffing of County and State EOC's begins. Utility TSC activated.
	1310	5	Offsite medical assistance requested for contaminated injured individual. Apex Rescue Squad to respond.
	1505	6	Condensate pump trips which results in a feedwater pump trip, reactor trip, and turbine trip. Auxiliary feedwater system fails entirely.

LIMITED ACCESS

his is a controlled access document distributed only on a need know basis. It is generally limited to the Exercise Director, ntrollers, Evaluators, and Trusted Agents for control and luation of the exercise.

1510	7	SITE AREA EMERGENCY DECLARED.

			Notification of offsite authorities. SERT is established and has operational control of state agency support. County EOC's fully staffed and in control. Primary and back-up notification and EBS information to the public activated by the counties.
	1520	8	Counties petition the Governor to assume direction and control - CONTROLLER INJECTED.
	1730	9	Exercise will be suspended with respect to time and scenario. SERT fully established and has direction and control.
B-85	0700	10	Exercise resumes. SITE AREA EMERGENCY continues.
	0710	11	Steam generator tube leak detected with fuel failure confirmed.
	0810	12	GENERAL EMERGENCY DECLARED.
			Notification to offsite authorities. Potential for radiological release exists within the next 31/2 hours. Source projection is for a minimum of 15 REM thyroid. Recommendation to offsite authorities for a 5-mile radius and 10-mile downwind evacuation. Field assessment teams deploy along projected plume path and record background readings. Primary and back-up notification and EBS information to the public activated by the SERT. Shelters opened and staffed.
	1130	13	Steam generator safeties lift for approximately 1 minute, releasing contaminated water to the atmosphere. Field assessment teams monitor and report radiation readings and RPS verifies plume.
	1230	14	In-place agency critiques conducted.
	1300	15	Table Top Exercise (Re-entry and Recovery/50-mile Ingestion Pathway considerations). See Annex E.
	1900		Closed joint Federal/State critique. See Annex G.

BRIEF NARRATIVE SUMMARY OF EVENTS--EMERGENCY PLAN EXERCISE May 17/18

The Shearon Harris Nuclear power plant has been operating at 100% power for the preceeding two months. Surveillance is in progress on "A" Auxiliary Feed pump; the motor/pump coupling is disassembled. RCS chemistry has reported gross activity slowly increasing over the last week, I131 level is 2 x10^{-4}. The load dispatcher has notified SHNPP that a critical need for power on the grid exists. The sprinkler fire suppression system for the RAB is depressurized for valve repairs. Wind is SSW to NNE at 20 knots. The weather is clear.

At 1100 on May 17, 1985, the valve bonnet gasket on the Auxiliary Feed pump turbine throttle valve blows out. The AO reports to control that steam is leaking in the RAB, in the area of the Aux. feed pumps. The steam jet penetrates and causes a ground in the cables over the pump, which causes a fire to start in the cable tray 1801. At 1107 this fire is reported to control. At 1108 the fire alarms in control from smoke in this area. The sprinker system does not operate, and the Shift Foreman declares an UNUSUAL EVENT at 1108. At 1110 off-site fire assistance is requested. At 1130 an assessment team is sent to investigate damages. At 1145 this team reports that the steam leak is coming from the supply to the A iliary feed pump. At 1147 Control shuts V-8 and V-9, which stops the steam leak and renders the Auxiliary feed pump inoperable.

At 1148 the damage assessment team reports to control that the steam leak is stopped, and that arcing and smoke continue in the cable tray over the Auxiliary feed pumps. The damage is unknown.

At 1200 the Shift Foreman declares ALERT because the EAL flowpath dictates this level when one shutdown system is inoperable. He does not declare site emergency because he considers both A and B Auxiliary Feed pumps operable, within the Tech. Specs rule. At 1205 control begins notifications of State and other off-site authorities. The Staff of the TSC is called, the TSC is activated. At 1230 the fire stops when the power supply breaker to 120VDC control power for the Auxiliary Feed pumps is opened. This detail is not communicated to control, only that the fire is out.

AT 1302, a man compacting contaminated waste in the waste disposal area is injured when a barrel bursts and cuts his leg. The injury is bleeding profusely, and contaminated. First aid is given at the scene, HP and site medical respond, recommending to control that off-site medical rescue is needed. At 1310 control notifies Rex hospital that the injured man is also contaminated. At 1345, the ambulance transports the casualty off-site. At 1350, extensive utilization of condensate storage tank water begins for area decontamination.

At 1445 I & C reports that the control cables for "B" Auxiliary feed pump are extensively damaged by fire, and deenergized. At 1455, control notifies load dispatcher that orderly shutdown is being commenced because of inoperability of redundant safety systems; ie: Tech. Specs. 3.7.1.2 requires operability of 3 Aux. Feed pumps in Mode I. At 1500, one condensate pump trips, which causes a feed pump trip, reactor trip, and turbine trip.

At 1506 alarms indicate that steam dumps have opened, and decreasing levels in all three Steam generators, no Auxiliary feed pumps are running. Emergency repairs are attempted on "A" Auxiliary feed pump coupling, without immediate success. At 1510 SITE EMERGENCY is declared because the EAL flow chart requires that level when the heat sink is threatened by loss of two trains of a safety system.

At 1520, the RCS temperature has peaked, steam is continuing to dump through the steam dumps. At 1600 RCS samples indicate a further increase in gross activity; I 131 is 1 x10^{3} ~~uc/ml~~ At 1700 exercise is suspended.

At 0700 exercise resumes. At 0710, HP reports that new RCS sample indicats I 131 of 1 x 10^{4} uc/ml, definate proof of a fuel cladding failure. At 0745, both A and C Steam Generators are Empty, efforts to start a Main Feed Pump have failed because condensate make-up water is not available; decontamination of the rad waste building has used it all.

At 0750, level is increasing in B steam generator, indicating a primary/secondary tube leak. The "B" Main steam isolation valve is shut, to minimize contamination of the secondary plant.

At 0800, level increases are plotted; it is calculated that the steam generator will be solid full of contaminated RCS water at 1130. The possible release through a safety valve at that time would be a public exposure.

At 0805 GENERAL EMERGENCY is declared on the basis of the EAL flowchart E 14, and PEP 104 flowchart which dictates recommendation of a 5 mile radius and 10 mile downwind evacuation. Sufficient time to evacuate is given by the time before the steam generator is full. Meteorology indicates wind at 10 MPH from NE to SW. At 0815 Shift foreman recommends notification to evacuate.

At 0900 HP reports no off-site contamination. At 1000 HP reports no off-site contamination. At 1100, RCS temperature has been successfully lowered so that saturation pressure in the Steam Generator is below the Safety setpoint, by utilization of RCS feed and bleed. The Pressurizer PORV was opened while utilizing the SI high head injection pumps to inject cool borated water. SI is reset, and recovery operations begin. The PORV is shut. "B" steam generator is solid.
At 1130, reset of reactor trip breakers inadvertently starts SI, instantly raising RCS pressure to 1500 psi, raising "B" steam generator secondary to 1500, and the "B" steam generator safeties lift, releasing approximately 100 gallons of contaminated water to atmosphere.

At 1200, stations 11, 12, and 13 report increasing activities. At 1210, HP reports site boundry exposure levels at 15 REM thyroid.

AT 1230 recovery begins, at 1330 exercise suspended.

Message No.	Time	Initiated from/to	Emergency Class	Event description
1	1050	Cr/all st.		Initial conditions communicated to all players
---------Exercise begins----------exercise begins----------				
2.	1100	RAB/CR		Steam leak from supply valve to steam driven auxiliary feed pump. Fire begins in overhead cable tray.
3.	1107	RAB/CR		Fire is reported. Damage unknown. Sprinkler malfunction reported.
4.	1108	CR	UNUSUAL EVENT	Shift Foreman declares Unusual Event: designates Emergency Communicator, notifies state/off-site authorities. CONTINGENCY MESSAGE
5.	1110	CR		Shift Foreman requests off-site fire assistance; CONTINGENCY MESSAGE
6.	1145	RAB/CR		Assessment team reports steam leak coming from supply header to Auxiliary Feed pump. Fire is in cable tray.
7.	1148	RAB/CR		If CR shuts V-8 and V-9, reports steam leak stopped, fire continuing in cable tray.
8.	1200	CR	ALERT	Shift Foreman declares Alert when EAL flow path indicates "one safety system train defeated", ie: steam auxiliary feed pump is now inoperative for unknown duration CONTINGENCY MESSAGE
9.	1205	CR		Shift Foreman notifies county and state authorities of Alert status, notifies TSC staff, begins TSC activation. CONTINGENCY MESSAGE
10.	1230	RAB/CR		Fire stopped. Local efforts opened supply breaker to 120VDC supply to Aux. Feed pump controllers. This detail not communicated to control room.
11.	1305	Waste Disposal/CR		Reports "one man injured while compacting solid waste into a barrel. Wound is bleeding profusely and also contaminated.

sage No.	Time	Initiated From/to	Emergency Class	Event Description
	1310	CR		Off-site medical rescue is requested. CONTINGENCY MESSAGE
	1345	Waste Disposal/CR		Ambulance arrives, HP/Medical handling casualty, preparations completed for transportation to hospital.
	1445	RAB/CR		Damage Control Assessment team leader reports that fire in cable tray has damaged the control power cables for "B" Auxiliary feed pump, which is now inoperable.
	1445	CR		Shift Foreman notifies load dispatcher of commencement of orderly shutdown. Tech Spec. violation if more than one hour operation with inoperative Aux. Feed pumps CONTINGENCY MESSAGE
	1505	CR		One running condensate pump trips, one Main Feed Pump trips, Lo/lo Steam Generators, Reactor Trip, Turbine Trip
	1510	CR	SITE EMERGENCY	Shift Foreman declares Site Emergency of basis of failure of both trains of safety system. ie: all three aux. feed pumps failed to start. Notifications to all authorities. CONTINGENCY MESSAGE
8.	1520	CR		Plant stabilizing, core exit temperatures decreasing, RCS temperature dropping, Feed and Bleed working, RCS Sample indicates increase in gross activity=1x10 uc/ml
9.	1600	Chem/CR		RCS sample increased to 1x10 uc/ml
0.	1700	CR/all st.	----------Exercise suspended----------	
1.	0700	CR/All st	----------Exercise resumed----------	
2.	0710	HP		Pri/sec tube lead in Steam Generator "B" is confirmed, Secondary sample indicates 1x10 uc/ml Level increasing RCS sample indicates fuel failure has occurred.

ssage No.	Time	Initiated From/to.	Emergency Class	Event description
.	0800	HP/CR		HP reports that when Steam Generator "B" is solid full of RCS, PEP 104 flowchart dictates General Emergency due to only one barrier to fission product release.
.	0805	STA/CR		Steam Generator "B" will be solid full in 3 1/2 hours, or about 1125. Possible release from Safeties at that time.
5.	0810	CR	GENERAL EMERGENCY	Shift foreman recommends 5 mile radius and 10 mile downwind immediate evacuation. CONTINGENCY MESSAGE.
6.	0815	Met		Wind will be from NE to SW at 1130 today
7.	0900	HP/CR		Background radiation levels at all site boundries and all off-site automatic stations.
8.	1000	HP/CR		Background radiation levels at all site boundries and all all off-site automatic stations.
9.	1100	CR		RCS cooled sufficiently to prevent S/G safety lifting. Stop Feed and bleed, shut PORV, reset SI.
0.	1130	CR		Inadvertent SI. RCS pressure 1500, S/G "B" pressure 1500, S/G "B" safeties open one minute, Release begins
1.	1200	HP/CR		Field assessment teams report increasing readings, Stations 11,12, 13 report increasing radiation readings.
2.	1210	HP/CR		Site boundry dose calculated @15 REM thyroid
3.	1330	CR/All stations		Exercise suspended

NORTH CAROLINA EXERCISE INSTRUCTIONS

FOR THE

SHEARON HARRIS NUCLEAR EXERCISE

May 17-18, 1985

Annex E - Table Top Exercise (Reentry and Recovery/50-mile Ingestion Pathway Considerations)

I. Purpose. To exercise that portion of the North Carolina Radiological Emergency Response Plan in support of the Sharon Harris Nuclear Power Plant that addresses those reentry, recovery and ingestion pathway actions to be taken during the post emergency period.

II. Concept. Reentry, Recovery and 50-mile Ingestion Pathway will be exercised through a free play Table Top Exercise whereby each represented state agency will interface to discuss its role during the post accident period. Discussion will be guided through a Radiation Protection Section facilitator, however, the overall intent is to surface potential problem areas, identify mutual support opportunities, and create a full awareness of the post accident mission.

III. Participants. SERT representatives of the following departments or agencies are expected to play their responsible roles in the exercise. Division or branch players may be represented for those departments with several mission tasks in a post accident scenario. In any case this decision will rest with the departmental representative.

A. State Government - All state agencies tasked within the N.C. Radiological Emergency Response Plan to initiate reentry, recovery and ingestion pathway actions in the post accident scenario are expected to play their responsible roles in the exercise. Some agencies with specific responsibilities are identified below:

1. NC Department of Agriculture

2. NC Department of Human Resources

a. Division of Health Services, Environmental Health Section.

1) Water Supply Branch

2) Sanitation Branch

3) Solid and hazardous Waste Branch

b. Division of Facility Services, Radiation Protection Section.

c. Division of Social Services.

d. Division of Mental Health.

3. NC Department of Natural Resources and Community Development, Division of Environmental Management.

a. Air Quality Section.

b. Water Quality Section.

c. Enforcement Emergency Response.

4. Wildlife Resources Commission.

5. Department of Crime Control and Public Safety.

a. SERT Leader.

b. SERT PIOs.

B. Local Government

Chatham, Harnett, Lee and Wake Counties' Representatives to SERT

C. Federal Government

U.S. Department of Energy, Savannah River Operations Office

D. Volunteer

American Red Cross Representative

IV. **Exercise Time and Location.** The exercise will be played internally at the State Emergency Operations Center (Room B-24) Administration Building, Raleigh, NC at 1:00 p.m., May 18, 1985. Estimated duration is two (2) hours.

V. **Discussion Topics.** The scope of the exercise will embrace full ingestion zone planning with first consideration being given to those immediate actions necessary to return evacuated residents to their homes after the accident condition has been abated. The below topics are considered germane to this planning and are listed for player consideration. This list is not inclusive and is listed only to give a direction for participation.

Air, soil, water and dairy sample collection
Milk purity
Water purity
Agriculture Crop Effects
Livestock Observation and Testing
Marine and Fish Observation and Testing
Wildlife Observation and Testing
Disposition & Transportation of Contaminated Materials
Recommended Measures to Protect People
Shelter Emergence
Public Information
Post Accident Information/Assistance Centers

NORTH CAROLINA EXERCISE INSTRUCTIONS FOR THE SHEARON HARRIS NUCLEAR EXERCISE May 17-18, 1985

Annex F - Administrative Matters

I. **Medical Treatment.** Facilities for actual medical treatment are located in all counties participating in the exercise.

II. **Transportation.** Transportation for all exercise participants, players, controllers and evaluators, will be provided by their department or agency.

III. **Meals.** All participants in the exercise will make their own arrangements for meals.

IV. **Lodging Facilities.** While the majority of exercise participants live and/or work in Raleigh, there may be a need for lodging accommodations during this exercise; therefore, arrangements have been made with the Holiday Inn, Downtown, to set aside a block of rooms under the name "Harris Exercise." Single room rates were quoted on March 26, 1985 as follows:

a. May 16 - $40.00 plus tax

b. May 17 and 18 - $34.95 plus tax

The telephone number is 919/832-0501.

NORTH CAROLINA EXERCISE INSTRUCTIONS
FOR THE
SHEARON HARRIS NUCLEAR EXERCISE
May 17-18, 1985

Annex G - Briefings, Meetings and Critiques

I. **Pre-Exercise Meetings**--The following meetings have been scheduled:

A. SERT Meeting: March 14, 1985, DEM Operations Room

B. SERT Players Meeting: May 13, 1985, 10:00 a.m., DEM Operations Room

C. Controllers/Evaluators Meetings:

1. April 2, 1985, 10:00 a.m., DEM Operations Room

2. April 30, 1985, 10:00 a.m., DEM Operations Room

3. May 14, 1985, 10:00 a.m., DEM Operations Room

II. **Pre-Exercise Briefing**--State Controllers/Evaluators and Federal Observers: May 16, 1985, 2:00 p.m., C.T. Bowers National Guard Center, Reedy Creek Road.

III. **Post-Exercise Activities:**

A. May 18, 1985

1. Exercise participants will hold agency critiques in-place immediately following the exercise.

2. Table Top Exercise at 1:00 p.m. See Annex E.

3. Closed County, State and Federal critique will be held at 5:00 p.m., C. T. Bowers National Guard Center, Reedy Creek Road. Participants will include SERT representatives from each agency, Chief Evaluator, Chief Controller and their duputies, and Federal Observers.

B. May 19, 1985

1. CP&L critique at 1:00 p.m., Harris Plant Site.

2. Public Meeting/Critique at 3:30 p.m., Apex Senior High School, Laura Duncan Road, Apex.

C. May 31, 1985

1. Each agency will provide the Exercise Director with recommendations for changes to the N.C. Emergency Response Plan in support of the Shearon Harris Nuclear Power Plant.

2. State Evaluators will send an evaluation report with a copy of the individual item evaluation sheets to the Chief Evaluator. The evaluation report should include problems identified and recommended agency changes.

NORTH CAROLINA EXERCISE INSTRUCTIONS
FOR THE SHEARON HARRIS NUCLEAR EXERCISE
May 17-18, 1985

Annex I - Distribution

I. North Carolina Departments and Agencies:

Governor's Office
Administration
Agriculture
Auditor
Correction
  Division of Prisons
Crime Control & Public Safety (3)
  Division of Emergency Management (15)
  State Highway Patrol (5)
  National Guard
  Civil Air Patrol
  Alcohol Law Enforcement
Cultural Resources
Education
Human Resources (10)
  Radiation Protection Section, DFS
  Emergency Medical Services Section, DFS
  Division of Aging
  Division of Health Services
  Division of Social Services
  Division of Mental Health, Mental Retardation & Substance Abuse Services
Insurance
Justice
  State Bureau of Investigation
  Police Information Network
Labor
Natural Resources & Community Development
  Division of Forest Resources
  Division of Environmental Management
Revenue
Secretary of State
Transportation
  Division of Highways
Treasurer
State Fire Commission
State Warning Point
Utilities Commission
Wildlife Resources Commission

II. Local Governments (Emergency Management)

Wake County (5)
Harnett County (5)
Lee County (5)
Chatham County (5)

III. Federal Agencies:

Federal Emergency Management Agency (FEMA)
  Region IV, Atlanta, Ga. (10)
  Thomasville, Ga. (2)
National Weather Service - RDU (2)
Corps of Engineers, Wilmington
Corps of Engineers, Jordan Lake

IV. Others:

Amateur Radio Service
American National Red Cross - Raleigh (2)
CP&L Company (10)
Emergency Broadcast System
  WQDR - FM, Raleigh
  WPTF - AM, Raleigh
N.C. Association of Rescue Squads
N.C. Sheriff's Association
Salvation Army, Raleigh
Southern States Energy Board
TOREV (3)

Attachment # 2

Federal Emergency Management Agency

Region IV 1371 Peachtree Street, NE Atlanta, Georgia 30309

June 18, 1985

MEMORANDUM FOR: RICHARD W. KRIMM, ASSISTANT ASSOCIATE DIRECTOR, OFFICE OF NATURAL AND TECHNOLOGICAL HAZARDS, SL-NT

FROM: Major P. May
Regional Director

SUBJECT: Interim Findings Report
Plant Harris, North Carolina

Attached is the Interim Findings Report on the adequacy of off-site preparedness in the vicinity of Plant Harris, North Carolina, as requested by the Nuclear Regulatory Commission.

The April 1985 revisions to the North Carolina Emergency Response Plan in support of the Shearon Harris Nuclear Power Plant, Revision No. 1, dated September 1984, have been reviewed by FEMA, Region IV and the Regional Assistance Committee (RAC).

The Plant Harris Exercise was conducted on May 17-18, 1985, and copies of the exercise report will be sent to FEMA National Office and to the State of North Carolina about July 1, 1985.

Based on a review of the above information and the recommendation from the NTH Division,, this office concurs that the State and local emergency plans are adequate and capable of being implemented, and the exercise demonstrated that off-site preparedness is adequate to provide reasonable assurance that appropriate measures can be taken to protect the health and safety of the public living in the vincinity of Plant Harris in the event of a radiological emergency.

Enclosure

Federal Emergency Management Agency
Region IV 1371 Peachtree Street, NE Atlanta, Georgia 30309

INTERIM FINDINGS REPORT
on the Adequacy of
Radiological Emergency Response Preparedness
for
Plant Harris, North Carolina

June 12, 1985

Prepared by the
Federal Emergency Management Agency
Region IV
Natural and Technological Hazards Division

TABLE OF CONTENTS

		page
I.	INTRODUCTION	
	A. General Characteristics of Plant Harris	1
	B. Emergency Response Organization	1
	C. Plans	1
	D. Basis for Findings	1-2
	E. Evaluation Format	2
II.	EVALUATION OF EMERGENCY PREPAREDNESS FOR PLANT HARRIS	
	A. Assignment of Responsibility	3-4
	B. On-site Emergency Organization	5
	C. Emergency Response Support and Resources	6
	D. Emergency Classification System	7
	E. Notification Methods and Procedures	8
	F. Emergency Communications	9
	G. Public Education and Information	10-11
	H. Emergency Facilities and Equipment	12
	I. Accident Assessment	13
	J. Protective Response	14
	K. Radiological Exposure Control	15
	L. Medical and Public Health Support	16
	M. Recovery and Reentry Planning and Post-Accident Operations	17
	N. Exercise and Drills	18
	O. Radiological Emergency Response Training	19
	P. Responsibility for the Planning Effort: Development, Periodic Review and Distribution of Emergency Plans	20

I. INTRODUCTION

A. General Characteristics of Plant Harris

The plant is located in the extreme southwest corner of Wake County, North Carolina, approximately 16 miles southwest of Raleigh. Approximate coordinates of the plant are latitude 35°38'01" N. and longitude 78°57'23" W.

The region within a 50-mile radius of the SHNPP site contains both urban and rural areas with industry, farming, business, education, research, and military facilities.

B. Emergency Response Organizations

The Departments of Crime Control and Public Safety (DCCPS) and Human Resources (DHR) have the major responsibility for responding to emergencies resulting from an incident at Plant Harris. However, any State agency may be tasked with an emergency mission.

The following county governments have responsibilities during emergencies at Plant Harris and will activate emergency operating centers in the indicated cities:

Chatham County, Pittsboro, NC
Harnett County, Lillington, NC
Sandford-Lee County, Sanford, NC
Wake County, Raleigh, NC

C. Plans

North Carolina Emergency Response Plan In Support of the Shearon Harris Nuclear Power Plant, Rev. 1, September 1984 (Parts 1-5).

Part 1: State Procedures
Part 2: Chatham County Procedures
Part 3: Harnett County Procedures
Part 4: Lee County Procedures
Part 5: Wake County Procedures

D. Basis for Findings

The status of emergency preparedness for off-site response to possible incidents at Plant Harris has been based on:

(1) The FEMA/RAC review of the North Carolina Emergency Response Plan In Support of the Shearon Harris Nuclear Power Plant, Rev.1, September 1984 (Parts 1-5).

(2) The FEMA/RAC evaluation of the Plant Harris Exercise, May 17-18, 1985.

E. Evaluation Format

The following report combines the previous evaluations into an overall Interim Findings Evaluation for each planning standard (A-P) of the criteria contained in NUREG-0654-FEMA-REP-1, Rev. 1. Narrative statements follow and address each planning standard. These are followed by summary statements, generally divided into three parts, numbered (1), (2), and (3):

(1) The FEMA/RAC evaluation of State and county plans and the exercise.

(2) The State and County response to FEMA/RAC evaluations.

(3) A determination of the current adequacy of the planning standard based on the above evaluations and on the States' and counties' responses. If the FEMA/RAC review of the plans and the exercise report indicate no deficiencies or problems, no State or local response was necessary, and a simple statement of the adequacy of the planning standard is given.

II. EVALUATION OF EMERGENCY PREPAREDNESS FOR PLANT HARRIS

A. Assignment of Responsibility (Organizational Control)

Planning Standard

Primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the Emergency Planning Zones have been assigned. The emergency responsibilities of the various supporting organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.

The North Carolina Emergency Response Plan in support of Plant Harris assigns responsibility for directing and conducting emergency operations within the plume exposure pathway jointly to State and local governments. At the State level the Department of Crime Control and Public Safety (DCCPS) has responsibility for directing and supervising emergency operations conducted by the State. This includes dispatch and operation of the State Emergency Response Team (SERT), headed by the Director of the Division of Emergency Management. The Department of Human Resources (DHR) provides technical expertise and coordinates emergency medical services at the accident site.

Other State agencies are assigned both primary and secondary emergency responsibilities. The relationships between all involved organizations are depicted in block diagram format. All responsibilities are summarized in tabular form.

At the county level control of response operations is vested with the Chairman of the County Board of Commissioners. Counties are expected to be fully responsible for population protection until arrival of the SERT. County plans establish operational responsibilities for other county agencies and depict these in both tabular form and in block diagrams showing interrelationships.

The State plan lists Federal sources of assistance and summarizes the types of assistance the State would seek from these sources.

State and local plans reference or include the specific authorities for conducting emergency operations. The State plan contains copies of agreements with the facility operator, University of North Carolina, North Carolina State University and General Electric Company relative to health physics resources and treatment capabilities.

(1) The FEMA/RAC review of the plans indicated a need for identification of, and letters of agreement for, some private sector agencies having emergency roles. The exercise, however, was not hindered because of this need. The exercise evaluation report found no deficiencies in this planning standard.

(2) North Carolina has included the necessary letters of agreement in the latest plan revision.

(3) The planning standard is now adequately addressed.

B. On-Site Emergency Organization

Planning Standard

On-shift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available, and the interfaces among various on-site response activities and off-site support and response activities are specified.

Technically, this standard applies only to the licensee, Carolina Power and Light Company. However, there are, of course, off-site implications. During the plan development stages, North Carolina worked closely with the utility to establish coordination procedures for on-and off-site response.

C. Emergency Response Support and Resources

Planning Standard

Arrangements for requesting and effectively using assistance resources have been made, that arrangements to accommodate State and local staff at the licensees near-site Emergency Operations Facility have been made, and other organizations capable of augmenting the planned response have been identified.

Section V-A, page 62, of the State Plan addresses emergency support and resources. Types of Federal assistance that can be made available are listed. The Director of the Division of Emergency Management is designated as the person authorized to request services and assistance. Among the sources of assistance listed is the Southern Mutual Radiation Assistance Plan (SMRAP) and technical staff personnel from universities and private industry in accordance with letters of agreement.

A State representative is designated in this section to assure that resources are committed in a manner that will assure maximum effectiveness and efficiency. This representative will serve at the Harris Plant Emergency Operations Facility.

(1) The initial FEMA/RAC plan review indicated the North Carolina plans needed additional letters of agreement.

(2) This inadequacy has been corrected.

(3) The planning standard is now adequately addressed.

D. Emergency Classification System

Planning Standard

A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial off-site response measures.

Emergency classifications adopted by the State of North Carolina are in accordance with the requirements set forth in NUREG-0654-FEMA-REP-1, Rev.1. The emergency classification system provided in the plan (page 32) is consistent with that established by the Carolina Power and Light Company. The four classes of emergencies are:

Notification of an Unusual Event
Alert
Site Area Emergency
General Emergency

The plan contains the rationale and actions to be taken for each emergency classification as well as examples of emergency action levels for each classification.

This planning standard is adequately addressed in the plans and was demonstrated by the State and counties during the May 1985 exercise.

E. Notification Methods and Procedures

Planning Standard

Procedures have been established for notification, by the licensee of State and local response organizations and for notification of emergency personnel by all response organizations; the content of initial and follow-up messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established.

Section IV.B.(page 34) of the State Emergency Response Plan provides that initial notification of any of the four incident classes be transmitted to both the State and county warning points. Commercial, via automatic ring-down (ARD), phone would be used to notify State; dedicated lines would be used for counties. Radio back-up exists for State and county notification. Call-back verification systems are established in both State and county plans. Incident classifications are consistent with those set forth in Appendix 1 to NUREG-0654-FEMA-REP-1, Rev. 1.

All plans have adequately provided for the alert, notification and mobilization of emergency response personnel.

Regardless of whether State direction of response operations has been effected, counties are responsible for public alerting and information. The primary means for alerting the public will be fixed siren systems. This system is backed up by a mobile siren/loud speaker system. The siren alert is sounded to notify the public to turn radios/televisions on to the area EBS station. The EBS will be activated prior to or concurrent with the siren alert.

State and county warning points are monitored 24 hours a day. Systems have been established at all levels of government for effecting public notification on a 24-hour basis.

This standard is adequately addressed in the plans and was demonstrated by the State and counties during the May 1985 exercise.

The official FEMA testing of the Alert and Notification System has not yet been conducted.

F. Emergency Communications

Planning Standard

Provisions exist for prompt communications among principal response organizations to emergency personnel and to the public.

Provisions have been made for communication networks to support all emergency response organizations throughout the course of an emergency. These networks utilize dedicated phone lines, commercial telephone service, Carolina Power and Light Company systems, local government emergency service two-way radio systems, and State and Federal government communications.

Commercial telephone is the primary means of communication between State emergency response organizations in North Carolina, South Carolina, Tennessee, and Virginia, and between State government and Federal response organizations.

Commercial telephone via dedicated lines is the primary means of communication between SERT headquarters and the EOCs in the four 10-mile EPZ counties.

Two-way radio and Police Information Network (PIN) are the back-up means of communication.

The primary means of communication between the SERT headquarters and the Harris Emergency Operations Facility is commercial telephone via automatic ringdown (ARD) circuits. Back-up communication between these two points is commercial telephone lines and two-way radio systems. These systems will be expanded as required.

A dedicated ARD circuit is the primary means of communication between the Harris Plant and the State and county warning points.

The back-up means of communications to the warning points are commercial telephone lines and two-way radio systems.

(1) The FEMA/RAC review of the plans indicated that this standard is adequately addressed. The may 1985 exercise indicated a need for additional communications equipment in Harnett County (NUREG-0654 deficiency F.1).

(2) The final exercise report has not yet been transmitted to the State, therefore, no State or county response to this deficiency has been received.

(3) Although this deficiency should be corrected, the lack of this equipment is not significant enough to seriously hamper emergency response in Harnett County.

G. Public Education and Information

Planning Standard

Information is made available to the public on a periodic basis on how they will be notified and what their initial actions should be in an emergency (e.g., listening to a local broadcast station and remaining indoors) the principal points of contact with the news media for dissemination of information during an emergency (including the physical location or locations) are established in advance, and procedures for coordinated dissemination of information to the public are established.

Section IV(D), page 41, of the State plan provides for the dissemination of two types of public information. The first type is "Educational" in nature in that it acquaints the public with the biological and environmental effects of the accidental release of radioactivity. The second type of information disseminated includes instructions concerning safety measures to be taken by the public should an emergency condition develop which results in a radioactive release offsite. The means by which these types of information are made available to the public (both permanent and transient) are listed in the Plan.

Information of the instructional type is prepared just prior to or during an emergency.

The plan indicates that the Director, Division of Emergency Management is the principal individual authorized to represent the State in matters dealing with the presentation and release of emergency public information. In addition, instructions relative to nuclear radiation incidents or accidents are the responsibility of the SERT Public Information Officer.

The plan provides coordinating instructions for release of public information and designates the public information officer assigned to the State Emergency Response Team as responsible for overall coordination of public information activities between State and local governments and Duke Power Company.

(1) The Standard is adequately addressed in the plans. During the May 1985 exercise, there were two deficiencies observed within this planning standard. These deficiencies were observed at the media center and involve the "timely exchange of information among designated spokespersons" and "coordinated arrangements for dealing with rumors" (G.4.b. and G.4.c.).

(2) The final exercise report has not been transmitted to the State, therefore, no State response to this deficiency has been received.

(3) Although these deficiencies should be corrected, they are not significant enough to seriously hamper emergency response.

H. Emergency Facilities and Equipment

Planning Standard

Adequate emergency facilities and equipment to support the emergency response are provided and maintained.

Operational facilities listed in the plan are:

1. The State EOC in Raleigh
2. Chatham County EOC
3. Harnett County EOC
4. Sanford-Lee County EOC
5. Wake County EOC

The State Emergency Response Team (SERT) will be located at the SEOC in Raleigh. All physical facilities are adequate in space and arrangement and provided with adequate equipment.

(1) The Harnett County EOC was found to be inadequate during the May 1985 exercise (NUREG-0654 H.3).

(2) The final exercise report has not yet been transmitted to the State, therefore, no State or county response to this deficiency has been received.

(3) Although this deficiency should be corrected, it is not significant enough to seriously hamper emergency response.

I. Accident Assessment

Planning Standard

Adequate methods, systems and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.

Section III (D), page 15, of the plan lists the requirements and actions to be taken by the radiation protection section of the North Carolina Department of Human Resources to assess the extent of off-site radiological problems as a result of an accident at the Harris Plant. The Plan provides for a mobile radiological laboratory equipped with instrumentation for gamma ray spectroscopy and field analysis of collected samples.

This section specifically addresses radioiodine in air, general field monitoring capability, assessment capability and relationship of environmental radiation measurements to protective action guides.

This standard is adequately addressed and was evaluated as adequate during the May 1985 exercise.

J. Protective Response

A range of Protective Actions have been developed for the Plume Exposure Pathway EPZ for emergency workers and the public. Guidelines for the choice of protective actions are developed and in place and protective actions for the Ingestion Exposure Pathway EPZ appropriate to the locale have been developed.

Protective response, Section III, D, page 15, of the Plan provides for the requirements and actions to be taken by the Radiation Protection Section of the Department of Human Resources. These actions will assure that necessary measures will be taken to protect the public from an accident at the Harris Plant. The Plan provides for the RPS of the Department of Human Resources to base its recommendations for protective response upon protective action guidelines developed by the U. S. Environmental Protection Agency and the U. S. Food and Drug Administration.

Provisions for use of radio protective drugs (KI) are addressed in Section IV(E), page 44. Protective measures to be used for the ingestion pathway are adequately provided for.

Time estimates for evacuation for all sectors of the Plume Exposure Pathway are addressed in Section IV(E), page 44. Protective actions for the Ingestion Pathway are included in Section IV(F).

This standard is adequately addressed in the plans and was evaluated as adequate during the May 1985 exercise.

K. Radiological Exposure Control

Planning Standard

Means for controlling radiological exposure in an emergency are established for emergency workers. The means for controlling radiological exposure shall include exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Action Guides.

Radiological exposure control for the public and emergency workers is addressed in Section IV(G), page 56, of the Plan. The radiation protection section of the Department of Human Resources uses the EPA recommended Protective Action Guides as the maximum acceptable levels of radiation to which the public and emergency workers may be exposed during an emergency at a Nuclear Power Electric Generating Plant.

This planning standard is adequately addressed in the plans and was evaluated as adequate during the May 1985 exercise.

L. Medical and Public Health Support

Planning Standard

Arrangements are made for medical services for contaminated individuals.

The State plan identifies and lists hospitals in the vicinity of the reactor which are capable of handling radiation injuries and contaminated casualties. The listing provides information concerning capabilities. This information indicates that adequate service can be provided.

This planning standard is adequately addressed in the plans and was evaluated as adequate during the course of the May 1985 exercise.

M. Recovery and Reentry Planning and Post-Accident Operations

Planning Standard

General plans for recovery and reentry are developed.

This planning standard is adequately addressed in the plans. Recovery and reentry operations were discussed during the Harris Exercise; however, North Carolina demonstrated this capability in previous exercises.

Recovery, reentry and post-accident operations are described in Section IV,H, page 60, of the State Plan. The Plan provides that the head of the Radiation Protecion Section reviews reports and findings of the radiological monitoring teams and health physics teams. When he determines that radiation levels are reduced to a point that the health and safety of the public is no longer a threat, he recommends to the SERT Leader that reentry and recovery operations begin.

The plan directs that Regulatory Guide 1.109 be used in making evaluation to assure that PAG's are not exceeded.

The Director, Division of Emergency Management, recommends to the Governor the date and time reentry and recovery operations should begin.

This planning standard is adequately addressed.

N. Exercise and Drills

Planning Standard

Periodic exercises will be conducted to evaluate major portions of emergency response capabilities. Periodic drills will be conducted to develop and maintain key skills and deficiencies identified as a result of exercises, or drills will be corrected.

An exercise and drill plan and schedule is established in the State Plan in Section VII, page 80. This Plan/schedule is consistent with the criteria established in NUREG-0654-FEMA-REP-1, Rev. 1.

Exercise development and conduct is the responsibility of the Department of Crime Control and Public Safety. Drill plans are the responsibility of the particular element or sub-element of the various emergency response organizations. Joint drills are encouraged.

This planning standard has been adequately addressed.

O. Radiological Emergency Response Training

Planning Standard

Radiological emergency response training is provided to those who may be called upon to assist in an emergency.

Training is prescribed for the following categories of response personnel. Responsible agency is indicated:

Personnel Category	Responsible Agency
Team Leaders/Coordinators	Crime Control and Public Safety
Accident Assessment Personnel	Department of Human Resources
Radiological Monitoring Teams	Division of Emergency Management
Law Enforcement/Fire	Appropriate Agencies
EMS and Rescue	FMS Section of Department of Human Rsources
Local Emergency Services Personnel	Local Emergency Management Coordinator
Medical Support	Local Emergency Management Coordinator
Communic .s	Appropriate Agencies

(1) The FEMA/RAC review of plans indicated that this standard is adequately addressed. The May 1985 exercise indicated a need for additional training in the area of dose assessment (NUREG-0654 Item O.4.b.).

(2) The final exercise report has not been transmitted to the State, therefore, no State response to this deficiency has been received.

(3) Although this deficiency should be corrected, it is not significant enough to seriously hinder emergency response.

P. Responsibility for the Planning Effort: Development, Periodic Review and Distribution of Emergency Plans

Planning Standard

Responsibility for plan development and review and for distribution of emergency plans are established, and planners are properly trained.

At the State level, the Director, Division of Emergency Management, is responsible for the development and update of plans. Among his responsibilities is the requirement to certify annually that the plans are current.

At the local level, the county Emergency Management coordinator is given the same responsibility.

This planning standard is adequately addressed.