Federal Emergency Management Agency
Region IV
3003 Chamblee-Tucker Road
Atlanta, Georgia 30341

October 18, 2001

Mr. Luis A. Reyes
Regional Administrator - RII
Nuclear Regulatory Commission
61 Forsyth Street, SW, Suite 23T85
Atlanta, Georgia 30303

Dear Mr. Reyes:

Enclosed is a corrected copy of the final report on the V. C. Summer Nuclear Station partial participation exercise that was conducted on July 18, 2001. The report that was previously mailed to you has not changed in content, but the attachments (extent-of-play, scenario, and boilerplate) were not for the V. C Summer Exercise. This error has been corrected and our office is re-mailing the report to all of the original recipients.

I apologize for any inconvenience caused by this error. If you have any questions please call me at (770) 220 5453.

Sincerely,

Joseph E. Canoles
State REP Liaison

Enclosure

cc: Ms. Vanessa E. Quinn, Chief
Federal Emergency Management Agency Headquarters
Radiological and Emergency Preparedness Branch - PT-CR-RP
500 C Street, SW, Room 614
Washington, DC 20472

Ms. Kathy Halvey-Gibson, Chief
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Office of Nuclear Reactor Regulation
Nuclear Regulatory Commission
Washington, DC 20555-0001

Final Exercise Report

V. C. Summer Nuclear Station

Licensee: **South Carolina Electric and Gas Company**

Exercise Date: **July 18, 2001**

Report Date: **October 3, 2001**

FEDERAL EMERGENCY MANAGEMENT AGENCY
REGION IV
3003 Chamblee Tucker Road
Atlanta, Georgia 30341

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I. EXECUTIVE SUMMARY

On July 18, 2001, a partial participation exercise was conducted in the plume exposure pathway emergency planning zone (EPZ) around the V. C. Summer Nuclear Station by the Federal Emergency Management Agency (FEMA), Region IV. The purpose of the exercise was to assess the level of State and local preparedness in responding to a radiological emergency. This exercise was held in accordance with FEMA's policies and guidance concerning the exercise of State and local radiological emergency response plans (RERP) and procedures.

FEMA wishes to acknowledge the efforts of the many individuals from the State of South Carolina, and the Counties of Fairfield, Lexington, Newberry and Richland who participated in this exercise.

Protecting the public health and safety is the full-time job of some of the exercise participants and an additional assigned responsibility for others. Still others have willingly sought this responsibility by volunteering to provide vital emergency services to their communities. Cooperation and teamwork of all the participants were evident during this exercise.

This report contains the evaluation of the biennial exercise and the following out-of-sequence activities: protective actions for schools, traffic control points, emergency worker decontamination, reception centers, congregate care centers, and a medical drill.

The State and local organizations, except where noted in this report, demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There were no Deficiencies and only three Areas Requiring Corrective Action (ARCAs) identified during this exercise. These ARCAs resulted from: 1.) incomplete information in the follow-on message to the EAS message; 2.) not informing the field teams to ingest KI when the decision was made; and 3.) an inadequate demonstration of decontamination of a radiologically contaminated, injured individual during the MS-1 Drill. Two ARCAs from the previous exercise were corrected during this exercise and one previous ARCA had already been corrected during the December 7, 1999 H. B. Robinson exercise.

Formal submission of the RERPs for the V. C. Summer Nuclear Station to FEMA Region IV by the State of South Carolina and involved local jurisdictions, occurred on March 31, 1981. Formal approval of the RERPs was granted by FEMA on November 13, 1981, under Title 44 CFR 350.

A REP exercise was conducted on July 18, 2001 by FEMA Region IV to assess the capabilities of state and local emergency preparedness organizations in implementing their RERPs and procedures to protect the public health and safety during a radiological emergency involving the V. C. Summer Nuclear Station. The purpose of this exercise report is to present the exercise results and findings on the performance of the offsite response organizations (ORO) during a simulated radiological emergency.

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

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

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

- FEMA-REP-14, "Radiological Emergency Preparedness Exercise Manual," September 1991; and

- FEMA-REP-15, "Radiological Emergency Preparedness Exercise Evaluation Methodology," September 1991.

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

Section IV of this report, entitled "Exercise Evaluation and Results," presents detailed information on the demonstration of applicable exercise objectives at each jurisdiction or functional entity evaluated in a jurisdiction-based, issues-only format. This section also contains: (1) descriptions of all Deficiencies and Areas Requiring Corrective Actions (ARCAs) assessed during this exercise, recommended corrective actions, and the state and local governments' schedule of corrective actions for each identified exercise issue and (2) descriptions of unresolved ARCAs assessed during previous exercises and the status of the ORO's efforts to resolve them.

II. INTRODUCTION

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

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

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

- Taking the lead in offsite emergency planning and in the review and evaluation of RERPs and procedures developed by state and local governments;

- Determining whether such plans and procedures can be implemented on the basis of observation and evaluation of exercises of the plans and procedures conducted by state and local governments;

- Responding to requests by the U.S. Nuclear Regulatory Commission (NRC) pursuant to the Memorandum of Understanding between the NRC and FEMA dated June 17, 1993 (Federal Register, Vol. 58, No. 176, September 14, 1993); and

- Coordinating the activities of Federal agencies with responsibilities in the radiological emergency planning process:

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

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

III. EXERCISE OVERVIEW

Contained in this section are data and basic information relevant to the July 18, 2001 exercise to test the offsite emergency response capabilities in the area surrounding the V. C. Summer Nuclear Station.

A. Plume Emergency Planning Zone Description

The V. C. Summer Nuclear Station is located 30 miles north of Columbia, South Carolina at the southern end of the Monticello Reservoir and near the western border of Fairfield County. The 10-mile EPZ includes portions of Fairfield, Lexington, Newberry and Richland Counties. The land use in the EPZ is rural in nature. The estimated permanent population in the EPZ is 10,880. Lake Monticello is the major recreational area in the EPZ. The State of South Carolina has divided the EPZ into 13 local planning zones.

B. Exercise Participants

The following agencies, organizations, and units of government participated in the V. C. Summer Nuclear Station exercise on July 18, 2001.

STATE OF SOUTH CAROLINA

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

RISK JURISDICTIONS

Fairfield County
Lexington County
Newberry County
Richland County

PRIVATE/VOLUNTEER ORGANIZATIONS

American Red Cross
Radio Amateur Civil Emergency Service
Salvation Army

C. Exercise Timeline

Table 1, on the following page, presents the time at which key events and activities occurred during the V. C. Summer Nuclear Station exercise on July 18, 2001. Included are times notifications were received or action was taken by the participating jurisdictions/functional entities.

Table 1. Exercise Timeline

DATE AND SITE: July 18, 2001 – V. C. Summer Nuclear Station

Emergency Classification Level or Event	Time Utility Declared	Time That Notification Was Received or Action Was Taken						
		SEOC	DOSE	JIC	FAIRFIELD COUNTY	LEXINGTON COUNTY	NEWBERRY COUNTY	RICHLAND COUNTY
Unusual Event								
Alert	0811	0817	0835	0835	0830	0820	0830	0834
Site Area Emergency	0918	0925	0943	0935	0933	0944	0930	0944
General Emergency	1041	1054	1106	1112	1059	1051	1051	1059
Simulated Rad. Release Started	1035							
Simulated Rad. Release Terminated	1235							
Facility Declared Operational EOF-0915		0830	0849	0925	0935	0945	0845	0830
Declaration of State of Emergency: State		0845		0910	0854	0912	0855	0853
Local						0950	0950	1004
Exercise Terminated		1237	1240	1240	1225	1240	1220	1215
Early Precautionary Actions: **Lake Clearance** **Distribution of Dosimetry and KI to emergency workers**	0925						0935	
1st Protective Action Decision **Evacuate Zones:** A0 & E1 **Shelter Zones:** E2	1016				1016	1016	1016	1016
1st Siren Activation		1025			1025	1025	1025	1025
1st EAS Message		1028			1028	1028	1028	1028
2nd Protective Action Decision **Evacuate Zones:** A0, E1, E2, F1, F2 **Shelter Zones:** All others	1114				1114	1114	1114	1114
2nd Siren Activation		1120			1120	1120	1120	1120
2nd EAS Message		1123			1123	1123	1123	1123
KI Decision: 1) Distribute to emergency workers 2) Emergency workers in evacuation zone to ingest.	1016 1220				1220	1016	1220	

LEGEND: **NOTE: * Sirens are activated from the plant site**

IV. EXERCISE EVALUATION AND RESULTS

Contained in this section are the results and findings of the evaluation of all jurisdictions and functional entities which participated in the July 18, 2001 exercise to test the offsite emergency response capabilities of state and local governments in the 10-mile EPZ surrounding the V. C. Summer Nuclear Station.

Each jurisdiction and functional entity was evaluated on the basis of its demonstration of criteria as delineated in exercise objectives contained in FEMA-REP-14, REP Exercise Manual, September 1991. Detailed information on the exercise objectives and the extent-of-play agreement used in this exercise are found in Appendix 3 of this report.

A. Summary Results of Exercise Evaluation - Table 2

The matrix presented in Table 2, on the following page, presents the status of all exercise objectives from FEMA-REP-14 which were scheduled for demonstration during this exercise by all participating jurisdictions and functional entities. Exercise objectives are listed by number and the demonstration status of those objectives is indicated by the use of the following letters:

M - Met (No Deficiency or ARCAs assessed and no unresolved ARCAs from prior exercises)

D - Deficiency assessed

A - ARCA(s) assessed or unresolved ARCA(s) from prior exercise(s)

N - Not Demonstrated (Reason explained in Subsection B)

Table 2. Summary of Exercise Evaluation

DATE AND SITE: July 18, 2001 – V. C. Summer Nuclear Station

Jurisdiction/Functional Entity	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
STATE OF SOUTH CAROLINA																																	
State Emergency Opers. Ctr.	M	M	M	M					M	M	A			M																			
Radiological Health				M			M		M																								
Dose Assessment	M		A	M			M																										
Emergency Operations Facility	M	M	M	M																													
EAS Station										M	M																						
Joint Information Center		M		M								M	M																				
Traffic Control Points				M	M												M																
FAIRFIELD COUNTY																																	
Emergency Operations Center	M	M	M	M					M	M	M		M	M	M																		
Protective Action For Schools																M																	
Traffic Control Points				M	M												M																
Reception/Congregate Care					M													M	M														
Emergency Worker Decon					M																	M											
LEXINGTON COUNTY																																	
Emergency Operations Center	M	M	M	M					M	M	M		M	M	M																		
Protective Action For Schools																M																	
Traffic Control Points				M	M												M																
Reception Center					M													M															
Emergency Worker Decon					M																	M											
NEWBERRY COUNTY																																	
Emergency Operations Center	M	M	M	M					M	M	M		M	M	M																		
Protective Action For Schools																M																	
Traffic Control Points				M	M												M																
Reception/Congregate Care					M													M	M														
Emergency Worker Decon					M																	M											
Lake Warning					M					M																							
Medical Drill					M															M	A												
RICHLAND COUNTY																																	
Emergency Operations Center	M	M	M	M					M	M	M		M	M	M																		
Traffic Control Points				M	M												M																
Reception Center					M													M															
Emergency Worker Decon					M																	M											

LEGEND: A = ARCA M = MET

B. Status of Jurisdictions Evaluated

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

- **Met** - Listing of the demonstrated exercise objectives under which no Deficiencies or ARCAs were assessed during this exercise and under which no ARCAs assessed during prior exercises remain unresolved.

- **Deficiency** - Listing of the demonstrated exercise objectives under which one or more Deficiencies was assessed during this exercise. Included is a description of each Deficiency and recommended corrective actions.

- **Area Requiring Corrective Actions** - Listing of the demonstrated exercise objectives under which one or more ARCAs were assessed during the current exercise or ARCAs assessed during prior exercises remain unresolved. Included is a description of the ARCAs assessed during this exercise and the recommended corrective action to be demonstrated before or during the next biennial exercise.

- **Not Demonstrated** - Listing of the exercise objectives which were not demonstrated as scheduled during this exercise and the reason they were not demonstrated.

- **Prior ARCAs - Resolved** - Descriptions of ARCAs assessed during previous exercises which were resolved in this exercise and the corrective actions demonstrated.

- **Prior ARCAs - Unresolved** - Descriptions of ARCAs assessed during prior exercises which were not resolved in this exercise. Included is the reason the ARCA remains unresolved and recommended corrective actions to be demonstrated before or during the next biennial exercise.

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

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

- An **ARCA** is defined in FEMA-REP-14 as "...an observed or identified inadequacy of organizational performance in an exercise that is not considered, by itself, to adversely impact public health and safety."

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

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

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

1. State of South Carolina

1.1 State Emergency Operations Center

The State Emergency Operations Center (SEOC) is an excellent, new, state-of-the-art facility, well designed for all emergency activations. Direction and control was well done with frequent updates and briefings to the staff. The Emergency Support Function (ESF) staff was actively engaged in the needs assessment process for the counties and used the Internet Routed Information System (IRIS) to address those needs. The protective action decision (PAD) process, coordination with the affected counties and alert and notification of the public were performed in accordance with the plan. There was a communications impediment that was overcome by use of the back-up system. A statement concerning persons without transportation in the follow-on news release needs to be rewritten to include contact information or reference to the calendar and/or brochures.

a. **MET:** Objectives 1, 2, 3, 4, 9, 10 and 14

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:**

Issue No.: 61-01-11-A-01

Description: At 1028 and 1123, emergency alert system (EAS) messages were broadcast by the LP-1 radio station. The EAS messages had follow-on news releases that were faxed to the radio station to be read upon conclusion of the EAS message. These follow-on messages included additional information concerning the evacuation and shelter-in-place decisions. Part of the information included a statement that told citizens needing assistance to contact the county emergency operation centers (EOC) for help. However, the EOC names and phone numbers were not added to the messages as indicated.

Recommendation: Provide complete information on all emergency information and instructions that are to be issued to the public.

Schedule of Corrective Actions: EAS procedures have been reviewed. Prescripted follow-on news releases have been revised to omit reference to county EOC telephone numbers. EAS procedures will be re-demonstrated during the H. B. Robinson exercise October 9, 2001.

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs - RESOLVED:**

Issue No.: 61-99-11-A-01

Description: The initial emergency alert system (EAS) message did not reference REP specific emergency information e.g., brochures and information in telephone books for use by the general public during an emergency as agreed to in the extent-of-play (EOP) for V.C. Summer. The message should have directed the general public to review the current V. C. Summer calendar for additional emergency information.

Corrective Action Demonstrated: Corrected during December 7, 1999 H. B. Robinson exercise. The initial EAS message broadcast referenced REP specific emergency information as required in the February 2, 1999, Kay Goss memorandum and the extent-of-play agreement. The message directed the general public to refer to the safety information brochure, provided by the plant, for additional emergency information.

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

1.2 Radiological Health

At activation of the SEOC, a Nuclear Emergency Response Coordinator (NERC) from the Department of Health and Environmental Control (DHEC) responded to the SEOC to provide radiological health support to the director of the SEOC. The NERC consulted the State plan and reviewed mostly utility dose projections and recommendations to formulate protective action recommendations (PAR). A significant portion of the NERC's time was consumed by the need to deal with communications not directly related to technical responsibilities. Despite the many demands on the NERC's time, she competently provided PARs to the SEOC Director. All DHEC radiological health responsibilities at the SEOC were carried out in accordance with the plan.

a. **MET:** Objectives 4, 7 and 9

b. **DEFICIENCY:** NONE

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

d. **NOT DEMONSTRATED:** NONE

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

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

1.3 Dose Assessment

The dose assessment staff of DHEC was located at the Command Center on Farrow Road. The Dose Assessment Coordinator (DAC) used the RASCAL 3.0 computer model to perform dose projections utilizing release information and meteorological conditions provided by the utility. There was consistency (within a factor of 5) between the utility projections and the DHEC projections. Coordination between the command center and the emergency operations facility (EOF) was very good. The command center staff were proactive in trying to obtain utility information and were knowledgeable of protective action considerations based on plant conditions and emergency classification levels. The NERC's decision regarding the ingestion of potassium iodide (KI) by emergency workers was not communicated to the field teams.

a. **MET:** Objectives 1, 4 and 7

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:**

Issue No.: 61-01-03-A-02

Description: The field monitoring team (FMT) personnel were not informed of the recommendation to ingest KI.

The NERC determined that KI should be administered to emergency workers in the evacuation zones at 1220. This message (ID #24627) was released on the IRIS computer system to all EOCs, all ESFs, and operations. This message was received at the command center; however, the message was not noticed until just prior to the termination of the exercise. The IRIS system was not regularly monitored by the staff and was not scheduled for use during this exercise until the last minute. This decision was not relayed to the FMT Director so that the FMT personnel could be informed of the need to ingest KI.

SCDHEC Plan, Appendix I - Protective Action Guides, Section II. - SCDHEC Plan for the Distribution of Potassium Iodide (KI) if a Nuclear Accident Creates a Possible Public Hazard from Radioactive Iodine Gases, Paragraph C. - KI Administration (pages I-10 and I-11, January 2000) SCDHEC Standard Operating Procedure 5.3 (November 1999). (NUREG-0654 A.1.d., 2.a., b., J.10.e., f.)

Recommendation: Review and rewrite procedures as necessary for the dissemination of the KI decision. Train appropriate staff to ensure that all appropriate locations are expediously notified of the decision.

Schedule of Corrective Actions: SCDHEC has reviewed operational procedures for conveying instructions regarding KI to field teams. KI procedures will be re-

demonstrated during the H. B. Robinson exercise October 9, 2001.

d. **NOT DEMONSTRATED:** NONE

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

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

1.4 Emergency Operations Facility

The EOF at the V. C. Summer Nuclear Station, located on-site in the facility's training center, is a facility from which all participating response organizations can effectively manage emergency operations. Communication and coordination, between and among the State officials deployed to the EOF, as well as with the utility operator and federal response team members, were outstanding. The availability and flow of technical information was timely and accurate, which allowed for all response organizations to effectively perform an independent accident analysis. All of the State officials deployed to the EOF were well trained, knowledgeable, followed applicable procedures, and overall performed their respective responsibilities in an efficient and professional manner.

a. **MET:** Objectives 1, 2, 3 and 4

b. **DEFICIENCY:** NONE

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

d. **NOT DEMONSTRATED:** NONE

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

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

1.5 Emergency Alert System Station

The LP-1 radio station, WCOS (97.5 FM), received instructions by telefax from the SEOC to simulate activation of the EAS following the Site Area Emergency (SAE) at 1024 hours and the General Emergency (GE) at 1121. In addition, the station received instructions from the SEOC at 1103 to activate the EAS for a livestock PAR during the SAE. The SEOC and station communicated over a dedicated telephone line to verify receipt of the telefax message, confirm authentication codes, the contents of the messages, and the time the messages were to be broadcast.
WCOS Radio is staffed 24 hours a day, seven days a week. Personnel interviewed included the Director of Engineering for Clear Channel Radio, the WCOS Operations Director/Program Manager, the News Manager, Midday Music Director, and three Morning Music Directors. All were thoroughly familiar with EAS broadcast procedures

and understood their roles in the process. In addition, all music directors and board personnel are required to take training in EAS broadcast procedures in order to maintain their positions. WCOS Radio maintains a log of all EAS activations and copies of the "South Carolina Emergency Alert System State Plan."

a. **MET:** Objectives 10 and 11

1.6 Joint Information Center

The capability to coordinate the development and dissemination of clear, accurate and timely information to the news media was demonstrated. The closely integrated public information staff at the Joint Information Center (JIC) coordinated news releases and information from the State and four affected counties for dissemination to the media. The plan calls for the SEOC to create and disseminate EAS messages and news releases that provide health and safety information for the public. The plan also calls for media monitoring to be accomplished at the corporate headquarters 25 miles away in Colombia. Therefore, JIC responsibilities are very limited and primarily involve reviewing State and county news releases for accuracy before dissemination and conduct of media briefings in the news center. News conferences were very well organized and timely. The utility spokesman was a senior executive who came from the EOF for each of the four news conferences. His status updates, public safety information, and media question responses were exceptional. The rumor control function had limited exercise but was able to identify two trends and take appropriate action.

The location of the JIC within the EPZ must be reconsidered. Media and JIC staff would have to enter and/or continue to occupy the area being evacuated for the plant emergency condition demonstrated in this exercise. This would necessitate declaring them emergency workers, providing necessary training and dosimetry. The only reasonable solution is to establish the JIC outside of the 10-mile EPZ.

a. **MET:** Objectives 2, 4, 12 and 13

b. **DEFICIENCY:** NONE

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

d. **NOT DEMONSTRATED:** NONE

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

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

1.7 Traffic Control Points

Traffic control point (TCP) procedures were successfully demonstrated at TCP #4 at SR 213 and SR 28 and TCP #3 at SR 215 and SR 60 through interview with five troopers from the South Carolina Highway Patrol. The officers arrived at their respective TCPs with appropriate dosimetry and recording forms for each emergency worker. Their shift supervisor also provided each with a standard operating guide (SOG), containing detailed instructions on their responsibilities, general information to assist the public and supplemental information pertaining to emergency worker protection. Each trooper displayed a high degree of professionalism and knowledge regarding both their TCP mission and personal protection. The interviewees discussed how they would establish a TCP and how they would obtain backup logistical support.

a. **MET:** Objectives 4, 5 and 17

b. **DEFICIENCY:** NONE

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

d. **NOT DEMONSTRATED:** NONE

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

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

2. RISK JURISDICTIONS

2.1 FAIRFIELD COUNTY

2.1.1 Emergency Operations Center

This was a well-managed EOC operation. Although the staff was prepositioned in accordance with the extent-of-play, the EOC was not declared operational until it would have actually been fully mobilized. The EOC is relatively small, but space is well utilized and operations were not hampered. Excellent direction and control was demonstrated by the Emergency Management Coordinator. Participation by the EOC staff and liaison officers from the State and the utility contributed significantly to the operation. Coordination with the State during the alert and notification and plume decision-making processes was smooth and efficient. Participation by the County Administrator during the entire exercise was commendable and contributed to the to the overall success of the exercise.

a. **MET:** Objectives 1, 2, 3, 4, 9, 10, 11, 13, 14 and 15

b. **DEFICIENCY:** NONE

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

d. **NOT DEMONSTRATED:** NONE

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

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

2.1.2 Protective Action for Schools

The Principal and Transportation Director were interviewed, out-of-sequence, on May 15, 2001, at Kelly Miller Elementary School. The school is notified of an incident at the V. C. Summer Nuclear Station by telephone from the County EOC and/or over a tone alert radio activated by the V. C. Summer Station. Three school buses are available at the school during the day and 10 more buses are available at the high school, if the school's 313 students need to be relocated. The school has a plan for relocation of the students which the principal and staff appear to be very capable of implementing. Law enforcement personnel will escort the buses and radios are available to communicate with and among the school buses. Information on relocation of school children, host schools and procedures for retrieving school children is provided to parents each school year by the school. The same information is included in the calendars distributed annually by the V. C. Summer Nuclear Station.

a. **MET:** Objective 16

b. **DEFICIENCY:** NONE

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

d. **NOT DEMONSTRATED:** NONE

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

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

2.1.3 Traffic Control Points

Fairfield County TCPs were demonstrated through interviews with officers from the Fairfield County Sheriff's Department. Upon receiving notification to man the TCPs, the officers reported to the Fairfield County Emergency Management office to pickup radiological detection equipment. The officers worked in three-man teams at their assigned TCPs. Both teams interviewed were familiar with their dosimetry, KI

requirements, turn-back values and TCP duties. The officers were very professional and dedicated.

a. **MET:** Objective 4, 5 and 17

b. **DEFICIENCY:** NONE

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

d. **NOT DEMONSTRATED:** NONE

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

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

2.1.4 Reception and Congregate Care

The reception center was operated by the Fairfield County Department of Social Services and the Fairfield County Fire Department. Personnel monitoring and decontamination was accomplished with speed and efficiency utilizing a portal monitor and a new and effective shower setup. Reception registration was an extremely well coordinated effort in an open and large area. The combined efforts of these two county organizations resulted in a truly professional operation.

The congregate care operation at White Oak was exceptional. The manager and staff have dedicated a lot of time and effort to making it a success in the event of an emergency. Personnel were pleasant and professional.

a. **MET:** Objectives 5, 18 and 19

b. **DEFICIENCY:** NONE

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

d. **NOT DEMONSTRATED:** NONE

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

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

2.1.5 Emergency Worker Decontamination

Members of the Fairfield County Fire Department professionally and competently demonstrated emergency worker decontamination. The demonstration reflected a thorough understanding of the decontamination procedures, non self-reading and self-

reading dosimeters, and the Ludlum Model 3 instruments used for monitoring. They also assembled, activated and demonstrated the proper use of a portal monitor. All personnel displayed an understanding of self-protective measures, turn-back values, and actions to take regarding their exposure levels. The large area designated for the receipt, monitoring and decontamination of emergency vehicles provided for drainage and run off of water used in cleansing vehicles. The participants were conscientious in their approach to their assignment.

a. **MET:** Objectives 5 and 22

b. **DEFICIENCY:** NONE

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

d. **NOT DEMONSTRATED:** NONE

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

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

2.2 LEXINGTON COUNTY

2.2.1 Emergency Operations Center

The EOC is co-located with the 911 Center. The Emergency Management Director and his staff did an excellent job. They were knowledgeable of their operating policies and procedures and performed with ease. The Director displayed excellent leadership and empowered all participants to exercise a full range of authority in carrying out their duties. He held several briefings and encouraged staff participation. A representative from South Carolina Electric and Gas Company gave briefings on plant conditions.

The County Administrator was present throughout the exercise and actively participated in the decision making process. A member of the Radio Amateur Civil Emergency Services (RACES) team did an excellent job. An officer from the Lexington County Police provided EOC security, maintained sign-in rosters and issued badges. All participants are commended for a job well done.

a. **MET:** Objectives 1, 2, 3, 4, 9, 10, 11, 13, 14 and 15

b. **DEFICIENCY:** NONE

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

d. **NOT DEMONSTRATED:** NONE

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

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

2.2.2 Protective Action for Schools

The Principal and the Transportation Director were interviewed at Chapin Elementary School on May 15, 2001. Both were new to their positions and neither has participated in a REP exercise. The Principal had a copy of the County's emergency plan and knew that the school would be notified of an incident at the V. C. Summer Station by the County EOC Director and by a tone alert radio activated by the V. C. Summer Nuclear Station. The Transportation Director has 110 school buses available in the county to evacuate the 737 students and 85 employees from the school. The Sheriff's Department would provide an escort for the buses during an evacuation and radios are available to maintain communications with the buses. Parents are provided information each year on the school's procedures for responding to emergency situations, including information on host schools if the students need to be relocated. The V. C. Summer Nuclear Station also provides this information in the calendars it distributes each year. The Principal and Transportation Director displayed a keen interest in providing for the safety of the students and staff during an emergency.

a. **MET:** Objective 16

b. **DEFICIENCY:** NONE

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

d. **NOT DEMONSTRATED:** NONE

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

f. **PRIOR ARCAs – UNRESOLVED:** NONE

2.2.3 Traffic Control Points

Lexington County fully demonstrated the organizational capability and resources necessary to control evacuation traffic flow. An interview was held at the EOC with two Lexington County Sheriff's Deputies. The deputies demonstrated superior knowledge and familiarity with plans, operation of traffic control location, communication capability and personnel dosimetry.

a. **MET:** Objectives 4, 5 and 17

b. **DEFICIENCY:** NONE

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

d. **NOT DEMONSTRATED:** NONE

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

f. **PRIOR ARCAs – UNRESOLVED:** NONE

2.2.4 Reception Center

The reception center for evacuees was set up at Crossroads Middle School in Irmo. It was staffed with personnel from the Department of Social Services and the American Red Cross (ARC). There was ample space to handle evacuees and their vehicles. The very well trained social services staff registered evacuees, assigned them to a hotel for housing, and provided transportation. The ARC staff assisted special needs evacuees with housing and transportation and provided first aid and canteen services. The ARC staff was professional and well trained.

a. **MET:** Objectives 5 and 18

b. **DEFICIENCY:** NONE

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

d. **NOT DEMONSTRATED:** NONE

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

f. **PRIOR ARCAs – UNRESOLVED:** NONE

2.2.5 Emergency Worker Decontamination

The County's decontamination facility was set up at Crossroads Middle School Complex in Irmo. This location serves as the decontamination facility for emergency workers and the reception center. The Lexington County Fire/HazMat Team was assisted by the Irmo Fire District with technical assistance provided by a liaison from DHEC. Radiological monitors were well trained and professional. They demonstrated monitoring and decontamination of emergency workers, vehicles and equipment as well as monitoring of evacuees and their vehicles. The Crossroads School Complex has more than sufficient space for parking vehicles, separating the contaminated from the uncontaminated and the facility is equipped with separate showers for men and women.

a. **MET:** Objectives 5 and 22

b. **DEFICIENCY:** NONE

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

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs - RESOLVED:**

Issue No.: 61-99-22-A-02

Description: The monitors at the emergency worker decontamination and reception center did not cover the probes on the portable Ludlum Model 3 with plastic to prevent the instrument from being contaminated. It was also observed that the Lexington County emergency workers had not been issued thermoluminescent dosimeters (TLD) or film badges (actual or simulated).

Corrective Action Demonstrated: All personnel monitoring evacuees, emergency workers and/or vehicles were issued simulated TLD's, dosimeters and a sheet with instructions and space to record readings. This equipment is kept on the HazMat van. Additional equipment is requested from the EOC. Monitors appropriately covered the probes on the Ludlum Model-3 with plastic wrap. Additional plastic wrap was kept on hand to replace if needed.

f. **PRIOR ARCAs – UNRESOLVED:** NONE

2.3 NEWBERRY COUNTY

2.3.1 Emergency Operations Center

The EOC is located in the Newberry County Law Enforcement Complex. The EOC is small, and while adequate for the exercise, it would be very difficult to conduct extended emergency operations in the space available. Approximately 15 minutes after receiving the notification of an Alert the EOC was fully operational. The Newberry County Director of Public Safety provided positive leadership and involved his cooperative staff in the decision making process. The utility representative and State Liaison provided vital support to the operation. The Public Information Officer (PIO), rumor control personnel, ARC representative, Sheriff's representative and amateur radio personnel were knowledgeable of their responsibilities and were conscientious in the performance of their duties. Message tracking and logging, posting of status boards, and distribution of messages were timely and efficient. Coordination with the State and counties on the PADs and the prompt action taken by the Public Safety Director and his staff in clarifying issues were highly effective. The use of computers to provide information to the public and to communicate with the JIC were noteworthy.

a. **MET:** Objectives 1, 2, 3, 4, 9, 10, 11, 13, 14 and 15

b. **DEFICIENCY:** NONE

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

d. **NOT DEMONSTRATED:** NONE

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

f. **PRIOR ARCAs – UNRESOLVED:** NONE

2.3.2 Protective Action for Schools

The Principal and Transportation Director were interviewed at the Pomeria-Garmany Elementary School on May 15, 2001. The school is notified of an incident at the V. C. Summer Nuclear Station by telephone from the County EOC and/or over a tone alert radio activated by the V. C. Summer Nuclear Station. School buses remain at the school during the day and school employees have been trained to drive the buses in the event of an emergency. Sheriff's Deputies provide an escort for the buses and radios are available for the first and last bus. The school has a copy of the County's emergency plan and the school staff has supplemented that plan. The Principal, staff and Transportation Director are all familiar with the procedures for relocating or sheltering-in-place and enthusiastic about their abilities to implement the plan. A letter is sent to the parents each year informing them of the procedures for relocating the students, identifying the host school, and providing procedures for the parents to retrieve their children from the host school. This same information is contained in the calendars distributed by the V.C. Summer Nuclear Station.

a. **MET:** Objective 16

b. **DEFICIENCY:** NONE

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

d. **NOT DEMONSTRATED:** NONE

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

f. **PRIOR ARCAs – UNRESOLVED:** NONE

2.3.3 Traffic Control Points

The capability to control vehicular traffic to and from the evacuation area was demonstrated during this exercise by three Newberry County Sheriff's Officers. These officers displayed an excellent understanding of the logistics of operating a TCP. The officers were also knowledgeable about the radiological requirements for emergency workers. Officers understood the various levels of radiation and what their response

should be to each level of radiation contamination, and knew and understood the turn-back values.

a. **MET:** Objectives 4, 5 and 17

b. **DEFICIENCY:** NONE

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

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs - RESOLVED:**

Issue No.: 61-99-05-A-03

Description: The Newberry County Sheriff's Deputies demonstrating traffic control had received training in radiological exposure control and knew the basics of how to use direct-reading dosimeters. The officers were not able to describe correctly the actions they were to take at the turn-back value of 1R.

Corrective Action Demonstrated: During this TCP demonstration the Newberry County Sheriff's Deputies indicated that they knew what to do when their direct-reading dosimeter reached 1R, the turn-back value. The officers were knowledgeable about all of the radiological aspects of the TCPs. They understood the various levels of radiological exposure and what their response should be when each exposure level was reached.

f. **PRIOR ARCAs – UNRESOLVED:** NONE

2.3.4 Reception and Congregate Care

Based on lessons learned from past real world emergency response operations and contingencies, the Newberry County reception center and congregate care facilities have been co-located, with the Newberry County ARC assuming the role as lead agency responsible for establishing the set-up, management, and stand-down operations. The congregate care facility demonstrated the reception and registration procedures for processing ten evacuees. The congregate care staff flawlessly processed the evacuees. The reception center and congregate care facility was well organized and selected areas were properly identified. The necessary supplies required for the establishment of the facility, to include individual dosimetry, are maintained in the Newberry County EOC.

a. **MET:** Objectives 5, 18 and 19

b. **DEFICIENCY:** NONE

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

d. **NOT DEMONSTRATED:** NONE

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

f. **PRIOR ARCAs – UNRESOLVED:** NONE

2.3.5 Emergency Worker Decontamination

Members of the Newberry County Fire Department demonstrated emergency worker decontamination. The demonstration area was fully set-up for the efficient receipt, monitoring, and decontamination of emergency vehicles and personnel. Individual high- and low-range direct-reading dosimeters, TLDs and exposure records were issued to personnel. Members equipped with the Ludlum hand held monitors demonstrated activation and discussed how to detect contamination of the probe and the frequency of post-activation operational checks. The Newberry County Fire Department uses the Ludlum Model 52, portal monitor to survey individuals for possible contamination. The monitoring and decontamination of a single vehicle and driver reflected an understanding in safeguarding emergency personnel and vehicles. Newberry County firefighters demonstrated the wearing of the level B personal protective equipment (PPE) for each firefighter, and they were enthusiastic and professional in their approach.

a. **MET:** Objectives 5 and 22

c. **DEFICIENCY:** NONE

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

d. **NOT DEMONSTRATED:** NONE

d. **PRIOR ARCAs - RESOLVED:** NONE

f. **PRIOR ARCAs – UNRESOLVED:** NONE

2.3.6 Lake Warning

The ability to locate and evacuate boaters from the lake adjacent to the power plant was demonstrated during an interview with two Department of Natural Resources (DNR) officers. Warning signs were present at both boat landings. Both DNR officers displayed an excellent understanding of the logistics of evacuating this lake. These officers were knowledgeable about the use of dosimetry, KI and the need to take frequent dosimeter readings. They understood the various levels of radiological exposure and the appropriate response to these levels.

a. **MET:** Objectives 5 and 10

b. **DEFICIENCY:** NONE

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

d. **NOT DEMONSTRATED:** NONE

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

f. **PRIOR ARCAs – UNRESOLVED:** NONE

2.3.7 Medical Drill

(See Appendix 5, for complete report)

a. **MET**: Objectives 5 and 20

b. **DEFICIENCY**: NONE

c. **AREAS REQUIRING CORRECTIVE ACTION**:

Issue No.: 61-01-21-A-03

Description: The hospital's Radiological Response Team (RRT) did not adequately demonstrate decontamination of the patient. Only a minimal amount of sterile water was used to cleanse the wounds (less than a quart) and some of that water ended up on the floor. Injects from the controller to the RRT indicated that contamination on the patient had been reduced to background. At termination, the patient was still laying on the sheet that she had been placed on at the Cannon's Creek Public Boat Landing. Both the sheet and the patient still had freshly cut grass clippings on them from the pick up location.

Recommendation: Review and revise procedures and provide additional training to insure that appropriate contamination control and decontamination procedures are followed.

Schedule of Corrective Actions: The county Department of Public Safety Director has discussed radiation decontamination procedures with Newberry County Hospital Emergency Room personnel. In coordination with the state and V. C. Summer Nuclear Station additional training will be conducted. The county will be prepared for a re-evaluation in July 2002.

d. **NOT DEMONSTRATED**: NONE

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

f. **PRIOR ARCAs – UNRESOLVED**: NONE

2.4 RICHLAND COUNTY

2.4.1 Emergency Operations Center

The Deputy Director of Emergency Management actively coordinated the efforts of the EOC staff and provided regular updates and guidance on the incident status and response activities. The Assistant County Administrator was actively involved in the decision-making process. All members of the EOC staff displayed a professional and positive attitude as they carried out their functions and successfully met all objectives.

The EOC is equipped and staffed to support continuous 24-hour operation during an emergency situation. The EOC has communication redundancy, and if the event requires significant staff augmentation there is additional office space adjacent to the operations room and the rooms would be linked through the IRIS. The county has upgraded the alternate 911 Center in the EOC, and an additional communications capability is provided by a fixed RACES station. A rumor control team fielded simulated calls from the public and coordinated responses and trends with the PIO and other appropriate EOC staff members.

a. **MET:** Objectives 1, 2, 3, 4, 9, 10, 11, 13, 14 and 15

b. **DEFICIENCY:** NONE

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

f. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs - RESOLVED:** NONE
g. **PRIOR ARCAs – UNRESOLVED:** NONE

2.4.2 Traffic Control Points

The TCP procedures were successfully demonstrated through an interview with two deputies from the Richland County Sheriff's Department at Dutch Fork High School. The officers arrived with appropriate dosimetry and record forms for emergency worker exposure. Their supervisor provided each with a briefing prepared specifically for their respective TCP prior to establishing the TCP. The briefing contained detailed instructions regarding their responsibilities, general information to assist the public and supplemental information pertaining to emergency worker protection. Each deputy displayed a high degree of professionalism and knowledge regarding both their TCP mission and personal protection. The interviewees discussed the actions they would take to physically establish a TCP and how they would obtain backup logistical support (e.g., cones, barriers).

a. **MET:** Objectives 4, 5 and 17

b. **DEFICIENCY:** NONE

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

d. **NOT DEMONSTRATED:** NONE

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

f. **PRIOR ARCAs – UNRESOLVED:** NONE

2.4.3 Reception Center

A reception center was established at Dutch Fork High School to receive evacuees from the affected areas. The reception center is co-located with the emergency workers monitoring and decontamination center. Facilities and resources are available for a successful operation. Monitoring and decontamination procedures were demonstrated by the Columbia Fire Department and Richland County Emergency Medical Service (EMS). Design of the school lends itself easily to the effective management of contaminated and non-contaminated personnel. Richland County does not operate a congregate care facility. All displaced persons are placed in hotels within the county. Effective procedures were in place for identifying available hotel rooms and transport of the evacuees to the hotel if required.

a. **MET:** Objectives 5 and 18

b. **DEFICIENCY:** NONE

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

d. **NOT DEMONSTRATED:** NONE

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

f. **PRIOR ARCAs – UNRESOLVED:** NONE

2.4.4 Emergency Worker Decontamination

Members of the Columbia Fire Department and the Richland County EMS demonstrated emergency worker decontamination. The demonstration area was laid out for the efficient receipt, monitoring, and decontamination of emergency vehicles and personnel. Individual self-reading dosimeters, TLDs and exposure records were issued and recorded in accordance with plans. Members equipped with the Ludlum Model-3 portable monitor demonstrated its activation and discussed how to detect contamination of the instrument

and the frequency of post-activation operational checks. The monitoring and decontamination of a single vehicle and driver reflected an understanding of the principles inherent in safeguarding emergency personnel and vehicles. Actions were taken to minimize cross-contamination and all participants enthusiastically and professionally performed their duties.

a. **MET:** Objectives 5 and 22

b. **DEFICIENCY:** NONE

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

d. **NOT DEMONSTRATED:** NONE

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

f. **PRIOR ARCAs – UNRESOLVED:** NONE

3. SUMMARY OF AREAS REQUIRING CORRECTIVE ACTIONS (ARCAs)

3.1 2001 ARCAs

3.1.1 61-01-11-A-01 SEOC

Description: At 1028 and 1123, EAS messages were broadcast by the LP-1 radio station. The EAS messages had follow-on news releases that were also faxed to the radio station to be read upon conclusion of the EAS message. These follow-on messages included additional information concerning the evacuation and shelter-in-place decisions. Part of the information included a statement that told citizens needing assistance to contact the county EOCs for help. However, the EOC names and phone numbers were not added to the messages as indicated.

Recommendation: Provide complete information on all emergency information and instructions issued to the public.

Schedule of Corrective Actions: EAS procedures have been reviewed. Prescripted follow-on news releases have been revised to omit reference to county EOC telephone numbers. EAS procedures will be re-demonstrated during the H. B. Robinson exercise October 9, 2001.

3.1.2 61-01-03-A-02 Dose Assessment

Description: The field monitoring team (FMT) personnel were not informed of the recommendation to ingest KI.

The NERC determined that KI should be administered to emergency workers in the evacuation zones at 1220. This message (ID #24627) was released on the Internet Routed Information System (IRIS) computer system to all EOCs, all ESFs, and operations. This message was received at the command center; however, the message was not noticed until just prior to the termination of the exercise. The IRIS system was not regularly monitored by the staff and was not scheduled for use during this exercise until the last minute. This decision was not relayed to the FMT Director so that the FMT personnel could be

informed of the need to ingest KI.

SCDHEC Plan, Appendix I - Protective Action Guides, Section II. - SCDHEC Plan for the Distribution of Potassium Iodide (KI) if a Nuclear Accident Creates a Possible Public Hazard from Radioactive Iodine Gases, Paragraph C. - KI Administration (pages I-10 and I-11, January 2000) SCDHEC Standard Operating Procedure 5.3 (November 1999). (NUREG-0654 A.1.d., 2.a., b., J.10.e., f.)

Recommendation: Review and rewrite procedures as necessary for the dissemination of the KI decision. Train appropriate staff to ensure that all appropriate locations are expediously notified of the decision.

Schedule of Corrective Actions: SCDHEC has reviewed operational procedures for conveying instructions regarding KI to field teams. KI procedures will be re-demonstrated during the H. B. Robinson exercise October 9, 2001.

3.1.3 61-01-21-A-03 Medical Drill

Description: The hospital's RRT did not adequately demonstrate decontamination of the patient. Only a minimal amount of sterile water was used to cleanse the wounds (less than a quart) and some of that water ended up on the floor. Injects from the controller to the RRT indicated that contamination on the patient had been reduced to background. At termination, the patient was still laying on the sheet that she had been placed on at the Cannon's Creek Public Boat Landing. Both the sheet and the patient still had freshly cut grass clippings on them from the pick up location.

Recommendation: Review and revise procedures and provide additional training to insure that appropriate contamination control and decontamination procedures are followed.

Schedule of Corrective Actions: The county Department of Public Safety Director has discussed radiation decontamination procedures with

Newberry County Hospital Emergency Room personnel. In coordination with the state and V. C. Summer Nuclear Station additional training will be conducted. The county will be prepared for a re-evaluation in July 2002.

3.2 PRIOR ARCAs - RESOLVED

3.2.1 61-99-11-A-01 SEOC

Description: The initial emergency alert system (EAS) message did not reference REP specific emergency information e.g., brochures and information in telephone books for use by the general public during an emergency as agreed to the extent-of-play. For V.C. Summer. The message should direct the general public to review the current V. C. Summer calendar for additional emergency information.

Corrective Action Demonstrated: Corrected during H. B. Robinson exercise on 12/7/99. The initial EAS message broadcast referenced REP specific emergency information as required in the Kay Goss, February 2, 1999 memorandum and the extent-of-play agreement. The message directed the general public to refer to the safety information brochure, provided by the plant, for additional emergency information.

3.2.2 61-99-22-A-02 Lexington County EWD

Description: The monitors at the emergency worker decontamination and reception center did not cover the probes on the portable Ludlum Model-3 with plastic to prevent the instrument from being contaminated. It was also observed that the Lexington County emergency workers had not been issued thermoluminescent dosimeters (TLD) or film badges (actual or simulated).

Corrective Action Demonstrated: All personnel monitoring evacuees, emergency workers and/or vehicles were issued simulated TLDs, dosimeters, and a sheet with instructions and space to record readings. This equipment is kept on the HazMat van. Additional equipment is requested from the EOC.

Monitors appropriately covered the probes on the Ludlum Model 3 with plastic wrap. Additional plastic wrap was kept at hand to replace if needed.

3.2.3 61-99-05-A-03 Newberry County TCPs

Description: The Newberry County Sheriff's Deputies demonstrating traffic control had received training in radiological exposure control and knew the basics of how to use direct-reading dosimeters, the officers were not able to describe correctly the actions they were to take at the turn-back value of 1R.

Corrective Action Demonstrated: During this TCP demonstration the Newberry County Sheriff's Deputies indicated that they knew what to do when their direct-reading dosimeter reached 1R, the turn-back value. The officers were knowledgeable about all of the radiological aspects of the TCPs. They understood the various levels of radiological exposure and what their response should be when each exposure level was reached.

APPENDIX 1

ACRONYMS AND ABBREVIATIONS

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

ACP	Access Control Point
ANI	American Nuclear Insurers
ARC	American Red Cross
ARCA	Area Requiring Corrective Action
CCC	Congregate Care Center
CD-V	Civil Defense - Victoreen
CFR	Code of Federal Regulations
CPM	Counts Per Minute
DHEC	Department of Health and Environmental Control
DHHS	Department of Health and Human Services
DNR	Department of Natural Resources
DOC	Department of Commerce
DOE	Department of Energy
DOI	Department of the Interior
DOT	Department of Transportation
DRD	Direct Reading Dosimeter
EAL	Emergency Action Level
EAS	Emergency Alert System
ECL	Emergency Classification Level
EEM	Exercise Evaluation Methodology
EMA	Emergency Management Agency
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EOP	Extent-of-Play
EPA	Environmental Protection Agency
EPD	Emergency Preparedness Division
EPZ	Emergency Planning Zone
EWMDS	Emergency Worker Monitoring and Decontamination Station
EW	Emergency Workers
FAA	Federal Aviation Agency
FCC	Federal Communications Commission
FDA	Food and Drug Administration
FEMA	Federal Emergency Management Agency
FEOC	Forward Emergency Operations Center

FMT	Field Monitoring Team
FR	Federal Register
FTC	Field Team Coordinator
ft/min	feet per minute
ft^3/min	cubic feet per minute
GE	General Emergency
GM	Guidance Memorandum
JIC	Joint Information Center
KI	Potassium Iodide
mR	milliroentgen
mR/h	milliroentgen per hour
NOAA	National Oceanic and Atmospheric Administration
NOUE	Notification of Unusual Event
NRC	U.S. Nuclear Regulatory Commission
NUREG-0654	NUREG-0654/FEMA-REP-1, Rev. 1, *"Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980*
OEM	Office of Emergency Management
ORO	Offsite Response Organization
PAD	Protective Action Decision
PAG	Protective Action Guide
PAO	Public Affairs Official
PAR	Protective Action Recommendation
PIO	Public Information Officer
R	Roentgen
RAC	Regional Assistance Committee
RACES	Radio Amateur Civil Emergency Service
RC	Reception Center
REA	Radioactive Emergency Area
REM	Roentgen Equivalent Man
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
R/h	Roentgen(s) per hour
RO	Radiological Officer
SAE	Site Area Emergency
SCDHEC	South Carolina Division of Health and Environmental Control

SEOC	State Emergency Operations Center
SOP	Standard Operating Procedure
TCP	Traffic Control Point
TLD	Thermoluminescent Dosimeter
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
WP	Warning Point

APPENDIX 2

EXERCISE EVALUATORS

The following is a list of the personnel who evaluated the V. C. Summer Nuclear Station exercise on July 18, 2001. The organization represented by each is indicated by the following abbreviations:

DOT	- Department of Transportation
FEMA	- Federal Emergency Management Agency
ICF	- ICF Consulting, Incorporated
NRC	- Nuclear Regulatory Commission

Lawrence A. Robertson **RAC Chairman**

EVALUATION SITE	EVALUATOR	ORGANIZATION
Joseph E. Canoles	Chief Evaluator	FEMA
STATE OF SOUTH CAROLINA		
State Emergency Operations Center	Tom Reynolds	FEMA
	Harold Dorminey	DOT
Radiological Health	James Hickey	ICF
Dose Assessment	Melody Geer	ICF
Emergency Operations Facility	Robert Trojanowski	NRC
EAS Station	Bill Vocke	ICF
Joint Information Center	Brett Kreger	ICF
	Josh Moore	ICF
FAIRFIELD COUNTY		
Emergency Operations Center	Robert Perdue	FEMA
Protective Action for Schools	Joseph Canoles	FEMA
State Traffic Control Points	Lawrence Boyle	ICF
State Traffic Control Points	Lawrence Boyle	ICF
Reception and Congregate Care	Chuck Richey	ICF
Emergency Worker Decontamination	Chuck Richey	ICF
Lake Warning	Lawrence Boyle	ICF
LEXINGTON COUNTY		
Emergency Operations Center	Eddie Hickman	FEMA
Protective Action for Schools	Joseph Canoles	FEMA

EVALUATION SITE	EVALUATOR	ORGANIZATION
Traffic Control Points	Rosemary Samsel	ICF
Reception Center	Rosemary Samsel	ICF
Emergency Worker Decontamination	Rosemary Samsel	ICF
NEWBERRY COUNTY		
Emergency Operations Center	Dave Moffet	ICF
	Tom Trout	FDA
Protective Action for Schools	Joseph Canoles	FEMA
Traffic Control Points	Tom Trout	FDA
Reception and Congregate Care	Lynn Mariano	ICF
Emergency Worker Decontamination	Lynn Mariano	ICF
Lake Warning	Tom Trout	FDA
Medical Service Drill (MS-1)	Joseph Canoles	FEMA
RICHLAND COUNTY		
Emergency Operations Center	Bill Larrabee	ICF
Traffic Control Points	Edward Wojnas	ICF
Reception Center	Edward Wojnas	ICF
Emergency Worker Decontamination	Edward Wojnas	ICF

APPENDIX 3

EXERCISE OBJECTIVES AND EXTENT-OF-PLAY AGREEMENT

This appendix lists the exercise objectives, which were scheduled for demonstration in the V. C. Summer Nuclear Station exercise on July 18, 2001 and the extent-of-play agreement approved by FEMA Region IV.

A. Exercise Objectives

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

B. Extent-of-Play Agreement

The extent-of-play agreement on the following pages was submitted by the State of South Carolina, and was approved by FEMA Region IV in preparation for the V. C. Summer Nuclear Station exercise on July 18, 2001. The extent-of-play agreement includes any significant modification or change in the level of demonstration of each exercise objective listed in Subsection A of this appendix.

V.C. SUMMER NUCLEAR STATION

PARTIAL PARTICIPATION EXERCISE

July 17-18, 2001

I. Purpose and scope:

A. The purpose of this partial participation exercise is to demonstrate the local emergency organizations' ability to protect the lives and property of the citizens residing, working, or traveling within the Plume Exposure Pathway Emergency Planning Zone (EPZ) in case of a radiological mishap at the V.C. Summer Nuclear Station.

B. The State of South Carolina and affected counties will accomplish the objectives as listed in the attachment. Some objectives will be demonstrated out-of-sequence with the scenario/events sequence due to scheduling and volunteer worker considerations. A complete list of such events will be furnished to all controllers and evaluators prior to the exercise.

C. The exercise will demonstrate the affected counties' ability to work efficiently with the utility and the State of South Carolina under emergency conditions. Federal Evaluators will observe the strengths and weaknesses of the emergency response forces. Such observations will form a basis for improvement of resources, plans and performance of the participating agencies.

D. The State of South Carolina will activate the State Emergency Operations Center (SEOC) in West Columbia, S.C. with sufficient staff for direction and control and all necessary assistance for the playing counties to achieve their objectives. Controllers, Evaluators, Liaison Officers and Public Information Officers will be pre-positioned.

II. Participants will include:

A. Designated State Agency Players - the Office of the Adjutant General Emergency Preparedness Division; Department of Health & Environmental Control, Bureau of Land Waste Management, and Health Services; Department of Social Services; Department of Public Safety, Highway Patrol; and Department of Natural Resources, Law Enforcement. All other RER agencies will be on standby.

B. Other participants will include:

1. The counties of Fairfield, Lexington, Newberry and Richland.

2. The V.C. Summer Nuclear Station.

3. Voluntary Organizations - Red Cross, Amateur Radio.

C. The V.C. Summer Nuclear Station is located 30 miles North of Columbia, South Carolina on the southern shore of Lake Monticello and the western border of Fairfield County. The station has been in operation since January 1984, and has one pressurized water reactor manufactured by Westinghouse Corporation. V.C. Summer Nuclear Station has an electric power generation capacity of 900,000 kilowatts.

V.C. Summer Nuclear Station REP Exercise Objectives

SITE: V. C. SUMMER
STATE: SOUTH CAROLINA
EX DATE: 7/18/01
TYPE: Partial

	STATE	Fairfield	Lexington	Newberry	Richland		
1 Mob Emerg Personnel	✓	✓	✓	✓	✓		A BIENNIALLY
2 Facil. / Equip. / Display	✓	✓	✓	✓	✓		
3 Direction & Control	✓	✓	✓	✓	✓		
4 Communications	✓	✓	✓	✓	✓		
5 Emerg. Work Exposure Control	✓	✓	✓	✓	✓		
6 Fld. Mon - Ambient							
7 Plume Dose Projection	✓						
8 Field Monitoring Iodine							
9 Plume Protective Action	✓	✓	✓	✓	✓		
10 Alert / Notification	✓	✓	✓	✓	✓		
11 Public Instr. / Emerg. Info.	✓	✓	✓	✓	✓		
12 Emerg. Info - Media	✓	✓	✓	✓	✓		
13 Emerg. Info - Rumor Control	✓	✓	✓	✓	✓		
14 KI-Emer Wkr/Gen Population	✓	✓	✓	✓	✓		B SCENARIO DEPENDANT
15 Special Population		✓	✓	✓	✓		
16 School							
17 Traffic Control	✓	✓	✓	✓	✓		
18 Reception Ctr-Reg/Mon		✓	✓	✓	✓		
19 Congregate Care		✓	✓	✓	✓		
20 Med Services Transport				✓			
21 Med Services Facility				✓			
22 Decon-Emer Wkr/Veh Equip		✓	✓	✓	✓		
23 Supplementary Assistance							C ONCE EVERY 6 YEARS
24 Post Emergency Sampling							
25 Post Emergency Lab.							
26 IPZ-Dose Projection Prot Act							
27 IPZ-Prot Action Implementation							
28 RRR-Decision Making							
29 RRR-Implementation							
30 24 hr Capability - Shift Change							
31 Evac on-Site Personnel							
32 Unannounced Exercise							
33 Off-Hours Exercise							

EXTENT OF PLAY AGREEMENT
V. C. SUMMER NUCLEAR STATION EXERCISE
July 17-18, 2001

All selected objectives will be demonstrated fully in accordance with respective plans. Exceptions are noted below.

OBJECTIVES	DEMONSTRATION
1	All State and local government personnel will be pre-positioned. Alert rosters will be provided to FEMA evaluators and a discussion of call-down procedures will be conducted.
3	General Direction and Control will take place at the State Emergency Operations Center (SEOC), West Columbia, SC; Fairfield County EOC, Lexington County EOC, Newberry County EOC and Richland County EOC.
5	Outside Activity exposure rates will be provided by exercise controller staff. Rates will not be scenario dependant. TLDs will be simulated by empty TLD holders.
7	The scenario will contain a simulated release. Dose assessment will be evaluated at the DHEC Command Center, Columbia, SC.
10	Sirens will be simulated in a silent test mode and EAS activated at SAE and both simulated at GE. Copies of EAS messages that would be aired in an actual emergency will be provided to FEMA evaluators. A FEMA evaluator will be present at the LP-1 Radio Station, WCOS. Department of Natural Resources, Law Enforcement will demonstrate Lake Clearing Operations via discussion at the Newberry County EOC, 9:00 a.m. Newberry County Public Boat Landings 3 and 4 will be evaluated (boat ride optional).
11	Copies of EAS messages and emergency public information news releases, that would be aired in an actual emergency, will be provided to FEMA evaluators.
12	Mock media will be used at the JIC.
13	Calls to rumor control personnel will be made by controller personnel. At least six calls each hour will be made to each rumor control person.

Calls will commence after public notification of SAE. JIC and county rumor control personnel will provide a list of rumor calls to the FEMA evaluator.

14 KI will be simulated by candy or other means (empty envelope marked "KI").

15 Demonstration through discussion of procedures and provision of special population list. A list of available vehicles will be provided to the FEMA evaluator. If non-government assets are used, letters of agreement will be provided to the FEMA evaluator.

16 School PADs will be simulated.

School notification will take place.

17 Calls to control access to rail and air will be simulated. Traffic will not be impeded. Traffic cones and barricades will not be used. If traffic cones or barricades are a part of the traffic control plan, a member of the Department of Transportation will be present.

[redacted]

[redacted]

Fairfield, Lexington and Newberry County Traffic Control Points will be evaluated at the respective County EOCs. Richland County Traffic Control Points will be evaluated at the Dutch Fork High School.

County Traffic Control Points to be evaluated are:

Fairfield: [redacted]

Lexington: [redacted]

Newberry: [redacted]

Richland: [redacted]

18/19 Lexington and Richland County Reception Centers and Fairfield and Newberry Shelters will be opened out of sequence. Monitoring, decontamination and registration will be performed. Procedures that assure that only non-contaminated persons enter the shelter will be demonstrated.

At least six people will be monitored and registered. Personnel decontamination will be via walk-through and discussion (no water will be used). At least two vehicles will be monitored and one vehicle decontaminated in accordance with local SOP (water will be used).

Reception Centers to be evaluated are:

Fairfield:	White Oak Baptist Conference Center
Lexington:	Crossroads Middle School
Newberry:	Newberry High School
Richland:	Dutch Fork Middle School

Shelters to be evaluated are:

Fairfield:	White Oak Baptist Conference Center
Newberry:	Newberry High School

20 Contaminated injured person will be transported by Newberry County EMS, at 8:30 a.m., July 17, 2001.

21 Medical treatment facility is Newberry County Memorial Hospital, 2669 Kinard Street, Newberry, SC.

22 County Emergency Worker Decontamination will be demonstrated in accordance with local SOP. Personnel decontamination will be via walk-through and discussion (no water will be used). At least two vehicles will be monitored and one vehicle decontaminated in accordance with local SOP (water will be used).

NOTE: Fairfield, Newberry and Richland County Emergency Worker Decontamination Points co-exist with the county reception centers or shelters.

OTHER EXTENT OF PLAY CONSIDERATIONS:

A. Reactor Trip Time: 0915 hours.

B. Release Start Time: 1030 hours.

C. RAC Briefing: 1:00 p.m., July 17, 1999 in the SCEPD Training Room, 1100 Fish Hatchery Road, West Columbia, SC.

D. Participants Critique: 10:00 A.M., July 20, 2000 in the SCEPD Training Room, 1100 Fish Hatchery Road, West Columbia, SC.

E. Public Critique: 11:00 A.M., July 20, 2000 in the SCEPD Training Room, 1100 Fish Hatchery Road, West Columbia, SC.

V. C. SUMMER REP EXERCISE OUTSIDE ACTIVITIES

Objectives and Outside Activity	STATE	FAIRFIELD	LEXINGTON	NEWBERRY	RICHLAND
Objective 10 Alert Notification: Lake Clearing	9:00 WCOS 2240 Millwood Ave. Columbia, SC 10:00 Newberry County PBLs 3 & 4				
Objective 17 Traffic/Access Control Points	(2 of 5) 9:00 On-scene #3, SC 215 and SR 60 #5, SC 213 & SR 28	(1 of 4) 9:00 County EOC #3, SC 213 & SC 321 #4, SC 34 & US 321 Bypass	(2 of 6) 9:00 County EOC #1, I-26 & SR 48 #2, US 76 & SR 232	(2 of 7) 9:00 County EOC #2, US 176 & SC 219 #3, SC 219 & Hillbrook Lane #6, SC 34 & Hillbrook Lane	(2 of 6) 8:00 Dutch Fork HS #4, Shady Grove Rd & Old Tamah Rd #6, Kenerly Rd & Old Tamah Rd
Objective 18 and 19 Reception and Congregate Care		(1 of 1) 2:00 White Oak Conference Center	(1 of 1) 10:00 Crossroads Middle School Complex	(1 of 1) 3:00 Newberry High School	(1 of 1) 10:00 Dutch Fork High School
Objective 22 Emergency Worker Decontamination		(1 of 1) 1:00 White Oak Conference Center	(1 of 1) 9:00 Crossroads Middle School Complex	(1 of 1) 2:00 Adult Vocational School	(1 of 1) 9:00 Dutch Fork High School

APPENDIX 4

EXERCISE SCENARIO

This appendix contains a summary of the simulated sequence of events -- Exercise Scenario -- which was used as the basis for invoking emergency response actions by OROs in the V. C. Summer Nuclear Station exercise on July 18, 2001.

This exercise scenario was submitted by the State of South Carolina and South Carolina Electric and Gas Company and approved by FEMA Region IV.

NARRATIVE SUMMARY

The plant is in A Train Maintenance Week. Prior to the Exercise, participants were told that there is a 0.7 gpm Reactor Coolant System (RCS) leak inside the Reactor Building (RB) confirmed by a sample of the Reactor Building Sump. A 0900 briefing has been scheduled to plan the subsequent Reactor Building entry.

RM-A3 was declared to be out of service at 0415 hrs. due to a loss of high voltage. The Simplex fire alarm panel in the Control Room is out of service due to an inoperable monitor. The "A" RB Spray Pump was run per Operations Surveillance Test as a post maintenance test and the vibration levels were out of specifications high. Troubleshooting revealed faulty bearings. As no replacement bearings were on site, the bearings were sent off site for refurbishment.

On the Main Control Board, the channel 1 PR FLUX HI SET PT status light was flashing in and out of status along with its associated annunciator. The problem has already diagnosed to be a faulty Universal Board A-404 and the process of replacing this circuit board is in progress.

On or about 0815 hours, "B" Charging Pump trips on high amps. Upon investigation by Operations, a fire in the "B" Charging Pump motor (internal short) is discovered. The Operator extinguishes the fire. The fire Brigade is dispatched. The Interim Emergency Director declares an **Alert based on Fire Potentially Affecting Safety Systems**. An announcement is made for Emergency Response Personnel to man their duty stations. The Technical Support Center and Operations Support Center are manned and activated.

Notifications are made to the State and local governments via the Electronic Switch System Exchange (ESSX) Ring-down Line, followed by notification to the Nuclear Regulatory Commission (NRC).

The State Warning Point (SWP) verifies the notification of the affected counties (Fairfield, Lexington, Newberry and Richland), notifies the South Carolina Emergency Preparedness Division (SCEPD) Operations Officer, and relays the information to the Department of Health & Environmental Control (DHEC). DHEC assesses the situation with the plant, confirms with SCEPD and recommends response required. SCEPD notifies the Governor's Office, Office of the Adjutant General, NC, GA and FEMA. SCEPD staff activate the SEOC SCEPD notifies other State Emergency Response Team (SERT) members to be on standby status (e.g. those required for evacuation and dispatch to near-site duty stations). The affected counties augment resources and bring EOCs to standby status.

On or about 0910 hours, the "C" Charging Pump trips due to bearing failure. A General Warning on the other train of Solid State Protection is received. The reactor does not

automatically trip. The Operators must manually trip the reactor using one of the two reactor trip switches on the Main Control Board. All rods are inserted except for two.

On or about 0915 hours, one of the two rods that did not insert falls into the core and is ejected. This causes a 3000 gpm Loss of Coolant Accident.

On or about 0925 hours, the Emergency Director should declare a **Site Area Emergency based on Known Loss of Coolant Accident Greater Than Charging Pump Capacity**. A breech of containment occurs due to failure of the Reactor Building Instrument Air piping. The isolation valve inside containment, (2662A), will not close due to broken springs, which allows the stem to cock off center. This will only be seen if an operator manually closes the valve as an "A" Train Safety Injection signal will not occur due to "A " Train reactor protection system being in "Test". The isolation valve outside containment (2662B) will not close on the Safety Injection signal due to the disk from the Vacuum Relief Valve has broken off and lodged in the isolation valve.

Notifications are made to State and local governments via ESSX Ring-down Line. Activation of the EWSS for this exercise will be simulated. The State and local governments are contacted to check road conditions and non-essential personnel are evacuated from the site.

SWP verifies affected county notification and notifies DHEC and SCEPD. SCEPD notifies the Governor's Office, NC, GA and FEMA. DHEC assesses the situation with the plant and confirms with SCEPD. DHEC/SCEPD recommend protective actions to the Governor.

SCEPD relays protective actions to the affected counties via the ESSX Decision Line.

The decision to activate the Emergency Warning Siren System (EWSS) and Emergency Alert System (EAS) is made by SCEPD and coordinated with the affected county directors via the ESSX Decision Line. Activation of the EWSS from the VCSNS for this exercise will be simulated with a "silent" test (results will be provided to FEMA). SCEPD coordinates EAS messages with EAS radio stations.

SCEPD notifies SERT members to send representatives to the SEOC (pre-positioned).

SCEPD dispatches State Liaison Officers to Fairfield, Lexington, Newberry and Richland counties (pre-positioned).

SCEPD dispatches Public Information group to the VCSNS Joint Information Center (JIC) (pre-positioned).

DHEC dispatches Liaison Officers to Fairfield, Lexington, Newberry and Richland county EOCs and VCSNS EOF (pre-positioned).

DHEC/SCEPD recommend if Potassium Iodide (KI) should be distributed to emergency workers.

SCEPD considers activation of the dosimetry redistribution SOP.

Department of Public Safety, Highway Patrol establishes 2-mile roadblocks and controls access to the plant area. Department of Natural Resources, Law Enforcement clears Lake Monticello and Broad River (Outside Activities).

Fairfield, Lexington and Newberry county public information representatives are dispatched to the JIC (pre-positioned).

Affected counties activate EOCs and emergency personnel to full status (pre-positioned) and issue dosimetry to emergency workers and direct protective actions as recommended and deemed appropriate.

On or about 1040 hours, Radiation Monitors begin increasing indicating failed fuel. An offsite release begins, originating from the Reactor Building, through the Reactor Building Instrument Air piping, through West Penetration ventilation and out the Main Plant Vent. This is a monitored, unfiltered release. The Emergency Director should declare a **General Emergency based on Loss of Two of Three Fission Product Barriers with Potential Loss of the Third.** Protective Actions are recommended to the State and Counties for evacuation of the two-mile radius and five miles down wind. Field Teams measure the dose rates in the field. Dose projections are performed based on these results to ascertain changes needed in Protective Action Recommendations. Changes are reported to the State and Counties, if warranted.

SCEPD verifies affected county notification.

DHEC coordinates with SCEPD and recommends protective actions. DHEC/SCEPD recommend area requiring evacuation and/or sheltering, if required, to the Governor's Office. SCEPD relays Governor's decision to affected counties via ESSX Decision Line.

SCEPD coordinates EWSS sounding time and EAS message time via ESSX Decision Line with affected county directors. EWSS sounding by VCSNS will be simulated by a silent mode test.

SCEPD notifies GA, NC and FEMA. SCEPD coordinates evacuation, sheltering and radiological monitoring, provides periodic press updates for the public, coordinates and allocates State resources, and requests federal support as needed.

Affected counties conduct evacuation and/or sheltering as ordered by the Governor, off-site radiological monitoring and decontamination as required, provide security for the evacuated area, and direct protective actions as recommended and deemed appropriate.

The exercise is terminated as utility, State and local government objectives are met.

NOTE:

A contingency package will be available to be used if an attempt is made to manually stop the release by plugging the relief valve. The person attempting to plug the valve will fall from the ladder/scaffolding and sustain a severe back injury.

TIMELINE

Pre-Exercise

0.7 gpm Reactor Coolant System (RCS) leak inside the Reactor Building (RB)
"A" RB Spray Pump Out Of Service (OOS)
Simplex is OOS in the Control Room due to inoperable monitor
RM-A3 OOS due to loss of high voltage
Briefing for Reactor Building entry is scheduled for 0900 hrs.

0740	General Warning on "A" Solid State Protection is received.
0800	"B" Charging Pump trips. Smoke and small fire in motor. Extinguished by operator.
0815	Interim Emergency Director declares an ALERT.
0900	"C" Charging Pump fails due to bearing failure. General Warning on "B" Solid State Protection is received. Plant Trip signal should be automatically initiated but is not. Operators trip plant using trip switches. All Control Rods insert except for two.
0915	One rods falls into core and then is ejected. 3000 gpm LOCA. "B" RB Spray Pump fails to start when/if actuated. Containment breech through RB Instrument Air piping.
0925	Site Area Emergency is declared.
1030	Radiation Monitor indications begin increasing indicating fuel damage.
1040	General Emergency is declared.
1200	Exercise is terminated as utility, State and local government objectives are met.

APPENDIX 5

MEDICAL DRILL

V. C. Summer Nuclear Station

Medical Drill

July 17, 2001

Newberry County Memorial Hospital, (Newberry, South Carolina)

On July 17, 2001, a medical services drill was conducted to evaluate the response of the Newberry County Emergency Medical Services (EMS) and the Newberry County Memorial Hospital. Members of the State Emergency Preparedness Division participated as controllers and observers and the Newberry County Emergency Management Director participated as an observer and provided the patient for the drill.

The drill began at approximately 0825 when the Newberry County EMS ambulance was dispatched to the Cannon's Creek Public Boat Landing for a patient that had fallen from a four-wheel all terrain vehicle (ATV) in an area suspected to have radioactive contamination. When the ambulance arrived at 0858 the crew had donned booties, facemasks, gloves and had direct-reading dosimeters (DRD). One crewmember began monitoring the area for radiological contamination while the other attendant placed sheets on the ground near the patient and at the rear of the ambulance. The attendants then assessed and treated the patient's injuries. The patient's outer clothing was removed and the patient was placed on a backboard, wrapped in sheets to contain contamination and then loaded into the ambulance. Communications were established with the hospital and maintained during transport to the hospital. During the drill the attendants stepped on the sheets, leaving freshly cut grass, and spreading contamination onto the sheets.

When the ambulance arrived at the Newberry County Memorial Hospital the Radiological Response Team (RRT) had prepared a receiving area to isolate and transfer the contaminated patient to a new treatment room that was located adjacent to the emergency entrance. The EMS crew was properly surveyed and demonstrated appropriate exit procedures. They knew where to go and what they would do if the ambulance or any of the crewmembers were contaminated.

Once inside the treatment room the physician on the RRT began examining the patient's wounds while the patient was monitored for contamination. Decontamination of contaminated areas was begun almost immediately. Bandages placed on the wounds before transport were removed and bagged for laboratory analysis for contamination. Swab samples were taken from the ears and nose and were also sent for laboratory analysis to determine if internal contamination had occurred. Self-reading dosimeters were read at appropriate intervals. The new treatment room is not large enough to accommodate a gurney, the RRT and equipment necessary to treat and decontaminate a patient. Decontamination was not adequately demonstrated. Grass, which indicated that contamination remained, from the pick-up location was still on the patient and the sheet the patient was lying on when the drill was terminated.

a. **MET**: Objectives 5 and 20

b. **DEFICIENCY**: NONE

c. **AREAS REQUIRING CORRECTIVE ACTION**:

Issue No.: 61-01-21-A-03

Description: The hospital's RRT did not adequately demonstrate decontamination of the patient. Only a minimal amount of sterile water was used to cleanse the wounds (less than a quart) and some of that water ended up on the floor. Injects from the controller to the RRT indicated that contamination on the patient had been reduced to background. At termination, the patient was still laying on the sheet that she had been placed on at the Cannon's Creek Public Boat Landing. Both the sheet and the patient still had freshly cut grass clippings on them from the pick up location.

Recommendation: Review and revise procedures and provide additional training to insure that appropriate contamination control and decontamination procedures are followed.

Schedule of Corrective Actions: The county Department of Public Safety Director has discussed radiation decontamination procedures with Newberry County Hospital Emergency Room personnel. In coordination with the state and V. C. Summer Nuclear Station additional training will be conducted. The county will be prepared for a re-evaluation in July 2002.

d. **NOT DEMONSTRATED**: NONE

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

f. **PRIOR ARCAs – UNRESOLVED**: NONE