

FEMA Region IV

Atlanta, Georgia

Final Exercise Report

H. B. Robinson Nuclear Station

Licensee:

Carolina Power and Light Company

Exercise Date:

December 7, 1999

Report Date:

March 2, 2000.

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

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I. EXECUTIVE SUMMARY

On December 7, 1999, a partial participation exercise was conducted in the plume exposure emergency planning zone (EPZ) around the H. B. Robinson Nuclear Station. The purpose of the exercise was to assess the level of state and local preparedness in responding to a radiological emergency. This exercise was conducted in accordance with the Federal Emergency Management Agency's (FEMA) policies and guidance concerning the exercise of state and local radiological emergency response plans (RERP) and procedures.

The previous exercise at this site was an ingestion pathway exercise that was conducted on November 17-18, 1997. The qualifying emergency preparedness exercise was conducted on March 11-12, 1981.

FEMA wishes to acknowledge the efforts of the many individuals in South Carolina, the Risk Counties of Chesterfield, Darlington and Lee and the Host County of Florence who participated in this exercise. Protecting the public health and safety is the full-time job of some 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. FEMA and the Nuclear Regulatory Commission (NRC) also participated in this exercise.

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

The state and local organizations, except where noted in this report, demonstrated knowledge of their emergency response plans and procedures and the ability to implement them. Only one Area Requiring Corrective Action (ARCA) was identified during the exercise and one ARCA remains from the November 17-18, 1997 exercise, because field teams were not deployed during this exercise.

Two ARCAs identified during the 1997 H. B. Robinson exercise were corrected during other South Carolina exercises: one during the August 18, 1998, Oconee Nuclear Station exercise and the other during the July 21, 1999 V. C. Summer Nuclear Station exercise. Four other previous ARCAs were corrected as was one ARCA from the July 21, 1999 V. C. Summer Nuclear Station exercise.

II. INTRODUCTION

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

FEMA 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 the 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 NRC pursuant to the Memorandum of Understanding between the NRC and FEMA (Federal Register, Vol. 58, No. 176, September 14, 1993)

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

- Department of Commerce,
- Nuclear Regulatory Commission,

- Environmental Protection Agency,

- Department of Energy,
- Department of Health and Human Services,
- Department of Transportation,
- Department of Agriculture,
- Department of the Interior, and
- Food and Drug Administration.

Representatives of these agencies serve on the FEMA Region IV Regional Assistance Committee (RAC) which is chaired by FEMA. Formal submission of the RERPs for the H. B. Robinson Nuclear Station to FEMA Region IV by the State of South Carolina and involved local jurisdictions occurred on February 13, 1981. Formal approval of the RERP was granted by FEMA on December 29, 1981, under Title 44 CFR 350.

A REP exercise was conducted on December 7, 1999, 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 H. B. Robinson Nuclear Station. The purpose of this 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 are based on the evaluations of the federal evaluator team, with final determinations made by the FEMA Region IV RAC Chairperson and the FEMA Lead Evaluator, 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 ARCAs assessed during this exercise, recommended corrective actions, and the state and local governments' response, and (2) descriptions of ARCAs assessed during previous exercises and the status of the OROs' efforts to resolve them.

III. EXERCISE OVERVIEW

Contained in this section are data and basic information relevant to the December 7, 1999, exercise to test the offsite emergency response capabilities in the area surrounding the H. B. Robinson Nuclear Station.

A. Emergency Planning Zone Description

The H. B. Robinson Nuclear Station is located west of the Lake Robinson Dam in western Darlington County. The facility is owned and operated by the Carolina Power and Light Company.

In operation since March 1971, the H. B. Robinson Nuclear Station has one pressurized water reactor. The reactor, Unit No. 2, has an electric power generating capacity of approximately 700 megawatts.

Portions of Darlington, Lee and Chesterfield Counties are located in the plume exposure pathway. The land use within the EPZ is primarily agriculture. The City of Hartsville lies within the 10-mile EPZ. The total population for the EPZ is 32,550. There are eleven emergency response planning areas within the EPZ.

Major parks include portions of the Carolina Sand Hills National Wildlife Refuge and the Sand Hills State Forest. The Lynches and Pee Dee Rivers are fed from watersheds draining through the probable affected area.

Over the facility, the prevailing winds are from the southwest and shift primarily from southwest to northwest. The greatest probability for an accident with off-site implications would affect Darlington County.

A CSX railway passes next to the plant. A spur is utilized for delivery of coal to an adjoining coal burning electrical generating plant.

B. Exercise Participants

The following agencies, organizations, and units of government participated in the H. B. Robinson Nuclear Station exercise on December 7, 1999.

STATE OF SOUTH CAROLINA

Office of the Adjutant General,

Emergency Preparedness Division

Department of Health and Environmental Control,

Bureau of Land Waste Management

Department of Social Services

RISK JURISDICTIONS

Chesterfield County Darlington County Lee County

HOST JURISDICTION

Florence County

PRIVATE/VOLUNTEER ORGANIZATIONS

American Red Cross s Civil Air Patrol Radio Amateur Civil Emergency Service (RACES)

C. Exercise Timeline

Table 1, on the following page, presents the time at which key events and activities occurred during the H. B. Robinson Nuclear Station exercise on December 7, 1999.

Table 1. Exercise Timeline

Frrort Bookmark not	Time	KONG LANGER			Time That Notification Was Rec	lycd or Action Was Taken	
defined.Emergency	Utility V		an stad of the				
Classification	Declared						
Level or eyenty		CARANTER AND	te fra vilene sente (**	HER REPAIRS NO.			
	EOF	SEOC	DOSE	JIC	CHESTERFIELD COUNTY	DARLINGTON COUNTY	LEE COUNTY
Unusual Event	0838	0855	0902	0915	0851	0851	0858
Alert	0938	0953	1005	1001	0952	0952	0952
Site Area Emergency	1054	1104	1115	1133	1103	1103	1104
General Emergency	1209	1240	1244	1232	1224	1224	1224
Simulated	1200		1244	1000	1004	1224	1774
Rad. Release Started	1209		1244	1230	1224	1224	1224
Simulated Rad. Release	Ongoing at						
Terminated	End of						
Facility Declared Operatio	LACIOISC	1006	0825	0954	0902	0958	1104
Declaration of State of Em	Argency	1010 \		1015	County 1006	County 1010	County 1115
Declaration of State of Dis	in Beney				State 1016	State 1014	State 1035
Exercise Terminated		1410	1425	1415	1359	1405	1348
DAVI CIDO A COMUNICION			1	Land the second s	I	1	
Early Precautionary Actio	ons:		1			Buses staged at school 0959	
Early Precautionary Action Evacuate Chesterfield Count	ons: ity Schools				Evacuate schools 1005	Buses staged at school0959Notify outside EWs0959	Evac Nursing Home 1054
Early Precautionary Action Evacuate Chesterfield Count Dosimetry Redistribution P	ons: ity Schools lan Implemented	1045			Evacuate schools 1005 Staged ambulances 1014	Buses staged at school0959Notify outside EWs0959Special needs population	Evac Nursing Home 1054
Early Precautionary Action Evacuate Chesterfield Count Dosimetry Redistribution Pl Lake Clearing	ons: ity Schools Ian Implemented	1045 1142			Evacuate schools 1005 Staged ambulances 1014	Buses staged at school 0959 Notify outside EWs 0959 Special needs population 0011 Contacted 1011	Evac Nursing Home 1054
Early Precautionary Action Evacuate Chesterfield Count Dosimetry Redistribution Pl Lake Clearing	ons: ity Schools lan Implemented	1045 1142			Evacuate schools 1005 Staged ambulances 1014	Buses staged at school 0959 Notify outside EWs 0959 Special needs population contacted 1011 County RDO requested dosimetry redictibution 1015	Evac Nursing Home 1054
Early Precautionary Action Evacuate Chesterfield Count Dosimetry Redistribution Pl Lake Clearing	ons: ity Schools lan Implemented	1045 1142			Evacuate schools 1005 Staged ambulances 1014	Buses staged at school0959Notify outside EWs0959Special needs populationcontacted1011County RDO requested dosimetryredistribution1015	Evac Nursing Home 1054
Early Precautionary Actio Evacuate Chesterfield Coun Dosimetry Redistribution Pl Lake Clearing 1st Protective Action Deci- Activate sirens – Stay tune	ons: ty Schools lan Implemented sion sion	1045 1142			Evacuate schools 1005 Staged ambulances 1014 1126	Buses staged at school 0959 Notify outside EWs 0959 Special needs population 0011 contacted 1011 County RDO requested dosimetry 1015 1126 1126	Evac Nursing Home 1054
Early Precautionary Actio Evacuate Chesterfield Coun Dosimetry Redistribution Pl Lake Clearing 1st Protective Action Deci Activate sirens – Stay tune 1st Siren Activation	ons: hty Schools lan Implemented sion ed for further info	1045 1142 <u>1126</u> 1136			Evacuate schools 1005 Staged ambulances 1014 1126 1136	Buses staged at school 0959 Notify outside EWs 0959 Special needs population contacted 1011 County RDO requested dosimetry redistribution 1015 1126 1136	Evac Nursing Home 1054
Early Precautionary Actio Evacuate Chesterfield Coun Dosimetry Redistribution Pl Lake Clearing 1st Protective Action Deci Activate sirens – Stay tune 1st Siren Activation 1st EAS or EBS Message	ons: hty Schools lan Implemented sion ed for further info	1045 1142 <u>1126</u> 1136 1139			Evacuate schools 1005 Staged ambulances 1014 1126 1136 1139	Buses staged at school 0959 Notify outside EWs 0959 Special needs population contacted 1011 County RDO requested dosimetry redistribution 1015 1126 1136 1139	Evac Nursing Home 1054
Early Precautionary Actio Evacuate Chesterfield Coun Dosimetry Redistribution Pl Lake Clearing 1st Protective Action Deci Activate sirens – Stay tune 1st Siren Activation 1st EAS or EBS Message 2nd Protective Action Dec	ons: ity Schools lan Implemented sion ed for further info ision	1045 1142 <u>1126</u> 1136 1139			Evacuate schools 1005 Staged ambulances 1014 1126 1136 1139	Buses staged at school 0959 Notify outside EWs 0959 Special needs population contacted contacted 1011 County RDO requested dosimetry redistribution 1015 1126 1136 1139	Evac Nursing Home 1054
Early Precautionary Actio Evacuate Chesterfield Coun Dosimetry Redistribution Pl Lake Clearing 1st Protective Action Deci Activate sirens – Stay tune 1st Siren Activation 1st EAS or EBS Message 2nd Protective Action Dec Shelter: A1, A2, B1, B2	ons: ity Schools lan Implemented sion ed for further info ision and E2	1045 1142 <u>1126</u> <u>1136</u> 1139 1307			Evacuate schools 1005 Staged ambulances 1014 1126 1136 1139 1307	Buses staged at school 0959 Notify outside EWs 0959 Special needs population contacted 1011 County RDO requested dosimetry redistribution 1015 <u>1126</u> <u>1136</u> 1139	Evac Nursing Home 1054
Early Precautionary Actio Evacuate Chesterfield Coun Dosimetry Redistribution PL Lake Clearing 1st Protective Action Deci Activate sirens – Stay tune 1st Siren Activation 1st EAS or EBS Message 2nd Protective Action Dec Shelter: A1, A2, B1, B2 Evacuate: A0, C1, C2, D	ons: ity Schools lan Implemented sion ed for further info ision and E2 D1, D2 and E1	1045 1142 1126 1136 1139 1307			Evacuate schools 1005 Staged ambulances 1014 1126 1136 1139 1307	Buses staged at school 0959 Notify outside EWs 0959 Special needs population	Evac Nursing Home 1054 1126 1136 1139 1307
Early Precautionary Actio Evacuate Chesterfield Coun Dosimetry Redistribution PL Lake Clearing 1st Protective Action Deci Activate sirens – Stay tune 1st Siren Activation 1st EAS or EBS Message 2nd Protective Action Dec Shelter: A1, A2, B1, B2 Evacuate: A0, C1, C2, D 2nd Siren Activation	ons: ity Schools lan Implemented sion ed for further info ision and E2 D1, D2 and E1	1045 1142 1126 1136 1139 1307 1310			Evacuate schools 1005 Staged ambulances 1014 1126 1136 1139 1307 1310	Buses staged at school 0959 Notify outside EWs 0959 Special needs population	Evac Nursing Home 1054 1126 1136 1139 1307 1310
Early Precautionary Actio Evacuate Chesterfield Coun Dosimetry Redistribution PL Lake Clearing 1st Protective Action Deci Activate sirens – Stay tune 1st Siren Activation 1st EAS or EBS Message 2nd Protective Action Dec Shelter: A1, A2, B1, B2 Evacuate: A0, C1, C2, D 2nd Siren Activation 2nd EAS or EBS Message	ons: ity Schools lan Implemented sion ed for further info ision and E2 D1, D2 and E1	1045 1142 1126 1136 1139 1307 1310 1313			Evacuate schools 1005 Staged ambulances 1014 1126 1136 1139 1307 1310 1313	Buses staged at school 0959 Notify outside EWs 0959 Special needs population	Evac Nursing Home 1054 1126 1136 1139 1307 1310 1313
Early Precautionary Actio Evacuate Chesterfield Coun Dosimetry Redistribution PL Lake Clearing 1st Protective Action Deci Activate sirens – Stay tune 1st Siren Activation 1st EAS or EBS Message 2nd Protective Action Dec Shelter: A1, A2, B1, B2 Evacuate: A0, C1, C2, D 2nd Siren Activation 2nd EAS or EBS Message KI Administration Decision	ons: ity Schools lan Implemented sion ed for further info ision and E2 D1, D2 and E1 on:	1045 1142 1126 1136 1139 1307 1310 1313			Evacuate schools 1005 Staged ambulances 1014 1126 1136 1139 1307 1310 1313	Buses staged at school 0959 Notify outside EWs 0959 Special needs population	Evac Nursing Home 1054
Early Precautionary Actio Evacuate Chesterfield Coun Dosimetry Redistribution PL Lake Clearing 1st Protective Action Deci Activate sirens – Stay tune 1st Siren Activation 1st EAS or EBS Message 2nd Protective Action Dec Shelter: A1, A2, B1, B2 Evacuate: A0, C1, C2, E 2nd Siren Activation 2nd EAS or EBS Message KI Administration Decision Distribute to Emergency M	ons: ity Schools lan Implemented sion ed for further info ision and E2 D1, D2 and E1 on: Workers	1045 1142 1126 1136 1139 1307 1310 1313 1118			Evacuate schools 1005 Staged ambulances 1014 1126 1136 1139 1307 1310 1313 1118	Buses staged at school 0959 Notify outside EWs 0959 Special needs population	Evac Nursing Home 1054

DATE AND SITE: December 7, 1999 – H. B. Robinson Nuclear Station

LEGEND: S – Support Jurisdiction

D - Decision Making Jurisdiction

A – Activating Jurisdiction

N/A - Not Applicable

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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 December 7, 1999 exercise to test the offsite emergency response capabilities of state and local governments in the 10-mile EPZ surrounding the H. B. Robinson Nuclear Station.

Each jurisdiction and functional entity was evaluated on the basis of its demonstration of criteria 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 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

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 Operations Center	M	M	Μ	M					Μ	Μ	Μ												Μ										
Dose Assessment	M	M	Μ	Μ			A							A																			
Emergency Operations Facility	M	M		Μ																						L							
Joint Information Center		M		Μ								М	М																				
LP-1 Radio Station WJMX										M	М																L				 		
State Traffic Control Points					M					_							M																
RISK JURISDICTIONS																									ļ								
Chesterfield County						· ·																										L	
Emergency Operations Center	Μ	Μ	М	M					Μ	Μ			M	M	M		<u> </u>							L			-				ļ	ļ	
Protective Actions for Schools																Μ	<u> </u>																
Traffic Control Points				M	M							<u> </u>					M											ļ					
Lake Clearing				M	M					Μ		·																1					
Emergency Worker Decontamination					М																	M											
Reception and Congregate Care				M	M													M	M					·									
Darlington County																																	
Emergency Operations Center	M	M	M	M					М	М		·	M	м	.M																		
Protective Actions for Schools			1						 		<u> </u>	ļ	L	1			M	ļ	ļ					1			1			<u> </u>	L		
Traffic Control Points	1				M				<u> </u>		ļ	ļ	 				M			<u> </u>										\perp	\bot		
Emergency Worker Decontamination					M	<u> </u>		_	<u> </u>		 			ļ	<u> </u>		ļ	 	L	ļ		M			1			1		\downarrow	ļ	<u> </u>	ļ
Lee County					ļ	<u> </u>	Ļ					ļ									<u> </u>			ļ		<u> </u>		<u> </u>		<u> </u>	<u> </u>	_	ļ
Emergency Operations Center	M	M	M	M	1	ļ			M	M			M	M	M		1	_	L.	ļ				1		<u> </u>		<u> </u>		<u> </u>	\downarrow	\vdash	
Traffic Control Points					M		ļ			ļ		ļ					M									ļ	<u> </u>			\bot	<u></u>		
Emergency Worker Decontamination	_	<u> </u>	ļ	M	M	_	<u> </u>								ļ	ļ	<u> </u>		<u> </u>		<u> </u>	M		ļ		<u> </u>	<u> </u>	<u> </u>			<u> </u>	<u> </u>	·
Reception and Congregate Care		_	_		M		<u> </u>		ļ		ļ		ļ					M	M	ļ		<u> </u>								<u> </u>	_	<u> </u>	
HOST JURISDICTION					\bot	1	<u> </u>	\downarrow	ļ				 		1								<u> </u>	-	1	1				\downarrow	_	<u> </u>	
Florence County			1							 			<u> </u>				1		 		<u> </u>	<u> </u>	L			<u> </u>		1		<u> </u>	\bot	\bot	_
Reception and Congregate Care					M				1					1		1		M	M		<u> </u>				1	\bot							

DATE AND SITE: December 7, 1999 - H. B. Robinson Nuclear Station

LEGEND: Met (No Deficiency or ARCAs assessed

M =

ARCA(s) assessed and/or unresolved prior ARCAs

Blank = Not scheduled for demonstration

And no unresolved prior ARCAs) Deficiency(ies) D =

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Not Demonstrated

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A =

N =

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 that 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 because corrective actions were 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 located in a small, well-run facility. The interaction with the county liaisons was excellent and the Internet Routed Information System (IRIS) computer program provided live messaging and requesting capability to all SEOC members and to the County Emergency Operations Centers (EOC). The Operations Manager and Operations Officer provided excellent direction and control with frequent briefings and staff meetings. The SEOC staff was very knowledgeable and proactive. When a communications glitch occurred, the SEOC activated two backup systems to coordinate with the counties. The NRC and FEMA liaisons provided the staff with some additional planning and response exercise play. The alert and notification process was coordinated with the counties and met the 15-minute activation requirement.

- **a.** MET: Objectives 1, 2, 3, 4, 9, 10, 11 and 23
- **b. DEFICIENCY:** NONE
- c. AREAS REQUIRING CORRECTIVE ACTION: NONE
- d. NOT DEMONSTRATED: NONE
- e. **PRIOR ARCAs RESOLVED:**

Issue No.: 61-99-11-A-01 – V. C. Summer

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 the V. C. Summer exercise. The message should have directed the general public to review the current V. C. Summer calendar for additional emergency information.

Corrective Action Demonstrated: 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.

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

1.2 Dose Assessment

The South Carolina Department of Health and Environmental Control (DHEC) Dose Assessment Group is located at the DHEC offices on Farrow Road in Columbia. They demonstrated the ability to make computer generated dose projections based upon plant conditions as received in messages at the SEOC. Comparisons were made with the utility's dose projections and based upon this evidence recommendations for protective actions were made to the DHEC liaison located at the SEOC. No field team data, from either the utility or DHEC was received at this location.

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

b. **DEFICIENCY:** NONE

c. AREAS REQUIRING CORRECTIVE ACTION:

Issue No.: 54-99-07-A-01

Description: No data, from either the utility or DHEC field teams is received at DHEC Dose Assessment. Consequently, actual doses received in the field are not considered by DHEC Dose Assessment in making their recommendations for protective actions to the Emergency Preparedness Division (EPD) via the DHEC liaison at the SEOC. Only DHEC field team data is transmitted to the Director of the Laboratory who is dependent upon Dose Assessment to send copies of dose projections in order to evaluate the consistency of the projections against the actual data. No dose projections were transmitted to the Director during this exercise. It was not clear how the Director's evaluation is input into the decision making process, but in any case, this evaluation process imposes an additional delay in the decision making process as well as lending itself to failure to protect the public if such evaluations are not made.

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Recommendation: Both state and utility field team data should come directly to DHEC Dose Assessment to be considered along with computer dose modeling programs in making recommendations for protective actions to SEOC.

Schedule of Corrective Action: We have reviewed our current procedures and plans and are in the process of making changes to these documents to reflect the receipt of field data to a centralized location during an exercise. Modifications will be made to both STRERP and our Standard Operating Procedures (SOP) to identify a centralized field data collection location for exercise situations where the FEOC and the DHEC Mobile Laboratory are not a part of the scheduled exercise's extent-of-play agreement. Our current plans are to make these necessary procedure changes and train our personnel on the changes in time to exhibit these changes during the March 29, 2000 exercise with Plant Vogtle.

d. NOT DEMONSTRATED: NONE

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

f. PRIOR ARCAs - UNRESOLVED:

Issue No.: 54-97-14-A-01

Description: The decision to ingest potassium iodine (KI) was not communicated to the field teams by DHEC.

Schedule of Corrective Actions: This exercise was not a full participation exercise for the State of South Carolina and therefore field teams were not deployed. The State of South Carolina plans to demonstrate the correction of this ARCA during a Full Participation exercise in 2000.

1.3 Field Teams

The extent-of-play for this exercise did not require the deployment of field teams. However, two ARCAs from the 1997 exercise were corrected during other South Carolina exercises.

- **a. MET:** N/A
- **b. DEFICIENCY:** NONE
- c. AREAS REQUIRING CORRECTIVE ACTION: NONE
- d. NOT DEMONSTRATED: NONE
- e. **PRIOR ARCAs RESOLVED**:

Issue No.: 54-97-08-A-02

Description: The field teams did not use the rotometer indicated airflow correction factor to report the correct volume of air sampled. Too much time was spent assembling equipment in the radiation area and the correct fixed geometry was not maintained when counting the zeolite cartridge.

Corrective Action Demonstrated: During the August 18, 1998 exercise at the Oconee Nuclear Station, field monitoring teams did use the rotometer airflow correction factor to report the correct volume of air sampled and assembled the equipment properly and correct fixed geometry was maintained when counting the zeolite cartridge.

Issue No.: 54-97-24-A-03

Description: The field teams collected leaves from trees for the vegetation sample. The purpose for vegetation sampling is to obtain representative samples for determining deposition on vegetation. Leaves off of trees are not representative since they are shielded from the radioactive fallout by the tree. The soil sampling procedure requires that soil samples be taken from an area two-inches in diameter by one-inch deep. Both field teams used a small trowel to scoop enough soil to fill a 400-ml container, which resulted in unknown surface area, thereby creating an unknown soil sample.

Corrective Action Demonstrated: During the July 21, 1999 exercise at the V. C. Summer Nuclear Station this ARCA was corrected. The revised SOP 7.2 Vegetation Sampling, dated October 1998, now states: "Select an area where grass, weeds, crops, etc. are present in an open area not sheltered by trees. A broad leaf tree that is approximately shoulder height that is not sheltered by taller trees may be sampled if ground vegetation is not available," has been included in the methods of collection for vegetation sampling. In the revised SOP 7.2, Soil Sampling, dated October 1998, a template with a 5" by 5" opening of the template to completely fill the 400-ml container and then place a lid securely on the container," has been added. Both field teams correctly collected a vegetation and soil sample.

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

1.4 Emergency Operations Facility

The H. B. Robinson Emergency Operations Facility (EOF), located on-site in the utility training complex, is an excellent facility from which all participating organizations can effectively manage ongoing emergency operations. Communications, coordination, and the flow of technical information between the utility operator and applicable state officials were exemplary. All of the state officials deployed to the EOF were well trained, knowledgeable, followed applicable procedures; and overall, they performed their respective responsibilities in an efficient and professional manner.

a. MET: Objectives 1, 2 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 Joint Information Center

The State of South Carolina together with Carolina Power and Light Company (CP&L) established the Joint Information Center (JIC), which is located at the CP&L Southern Region Complex in Florence, South Carolina. Also participating at the JIC were the three risk counties, Darlington, Chesterfield, and Lee, and Florence County, a host county. Coordination among the participants assured that information provided to the public was accurate and timely. Four media briefings were conducted and were augmented by the issuance of seven state and nine CP&L press releases to inform the citizens about the incident at Robinson and actions recommended to protect the public. Rumor control personnel received and answered over 90 calls from the public and the media and provided information and corrected misinformation.

- **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

1.6 LP-1 Radio Station WJMX

The LP-1 Radio Station, WJMX, received instructions from the SEOC to broadcast an EAS test message. This action occurred during the Site Area Emergency in conjunction with the exercise at the H.B. Robinson Nuclear Power Station. Both parties communicated by telephone to confirm authentication codes, verify receipt of faxed copies of the test message, content of the message, time the message was to be broadcast, and actual message broadcast.

WJMX Radio is staffed 24 hours a day, seven days a week. Personnel interviewed included the Chief Engineer/Operator for Root Communications and the WJMX Morning Show Producer, FM Music Director/Interim Program Director, and the afternoon announcer. All were familiar with EAS broadcast procedures.

- **a. MET:** Objectives 10 and 11
- **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 State Traffic Control Point

Two South Carolina State Highway Patrol (SCSHP) Troopers demonstrated the organizational capabilities and resources necessary to control radiation exposure to themselves while performing their responsibilities at the State Traffic Control Point (TCP) 16-A. The SCSHP Troopers demonstrated knowledge of their responsibilities when assigned to this TCP and demonstrated knowledge on the use of dosimetry and exposure control.

- a. MET: Objectives 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 CHESTERFIELD COUNTY

2.1.1 Emergency Operations Center

The Emergency Services Director effectively coordinated the emergency response operation and was ably supported by plant and state liaisons. The EOC staff was competent and performed their duties in a professional and conscientious manner. The message tracking personnel and the Public Information Officer (PIO) performed their duties exceptionally well. The EOC operation was effectively supported by amateur radio personnel. The EOC personnel coordinated with state and other EPZ counties and successfully implemented the evacuation and shelter-in-place Protective Action Decisions (PAD).

- **a. MET:** Objectives 1, 2, 3, 4, 9, 10, 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 Actions for Schools**

Protection of school children was demonstrated by simulated evacuation of the three schools in the 10-mile EPZ to the host school. An Assistant Superintendent coordinated activities from the EOC. Bus drivers are typically available on short notice. Convoys of school buses would be escorted by Sheriff's Deputies with radiation exposure equipment. Appropriate information was promptly relayed to the JIC for a press release.

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- **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

Traffic control procedures were demonstrated during an interview with a Chesterfield Policeman at the EOC. Officers would assist evacuees going to Chesterfield High School. Adequate resources are available to remove impediments. This officer had appropriate radiation exposure equipment, including KI (simulated) and records. Turnback is authorized at 1R; and may be up to 5R for special missions.

- **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

2.1.4 Lake Clearing

Lake clearing on Lake Robinson was demonstrated during an interview conducted at the Public Boat Landing site in Chesterfield County. The two Department of Natural Resources Law Enforcement Rangers who were interviewed, explained the warning process in detail to include use of sirens and bullhorns. They were knowledgeable of the use of personal dosimetry and related reporting requirements.

- a. MET: Objectives 4, 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

2.1.5 Emergency Worker Decontamination

The objectives were demonstrated by Emergency Medical Service (EMS) personnel from First Health of the Carolinas (under contract to Chesterfield County). The EMS personnel were exceptionally well-trained and conducted emergency worker and vehicle decontamination procedures flawlessly. The entire operation was supervised by the County Radiological Officer. This was an excellent demonstration by well-trained professionals.

- 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

2.1.6 Reception Center and Congregate Care Center

The objectives for both reception and congregate care were exceptionally well demonstrated. Monitoring of evacuees was demonstrated by EMS personnel from First Health of the Carolinas, under the supervision of the County Radiological Officer. Utilizing a portal monitor, six volunteer evacuees were monitored in 4.5 minutes. The local American Red Cross (ARC) was in charge of congregate care and personnel were well prepared to conduct registration and sheltering operations. The levels of professional competence demonstrated by EMS personnel, the County Radiological Officer, and the ARC and their supporting agencies were exceptional.

- **a. MET:** Objectives 4, 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

2.2 DARLINGTON COUNTY

2.2.1 Emergency Operations Center

The Darlington County EOC Director provided positive direction and control to an experienced and motivated EOC staff. Frequent briefings were conducted and status boards were utilized to post actions as they occurred. The presence of the County Administrator and a visit by the Chairman of the County Council was reflective of the County's commitment to public safety. Representatives from EPD, DHEC and CP&L provided valuable assistance to the EOC operation. The Humane Society made a significant contribution to the EOC operation by developing an excellent Animal Emergency Response Annex for the county plan. They also developed and distributed brochures to be utilized by the public.

The Darlington Civil Air Patrol (CAP) operation is unique to Darlington County and is one of the most valuable additions to an EOC operation observed to date. They are the only CAP squadron in the country that is certified to perform radiological monitoring, and are outfitted with slow scan aerial television that can send aerial photographs that are displayed on a television in the EOC. These pictures are captured on tape and can be sent by e-mail to any location in the world.

- **a. MET:** Objectives 1, 2, 3, 4, 9, 10, 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 Actions for Schools

School officials at Carolina Elementary, Hartsville Junior, and Hartsville High Schools were very knowledgeable of protective actions for schools under their leadership during interviews at the EOC. They were receptive to innovative ways to enhance the evacuation process.

- 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

Three personnel from the Darlington County Sheriff's Department were interviewed in the EOC in sequence with the scenario. All were knowledgeable of traffic control, dosimetry and reporting procedures.

- a. MET: Objectives 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 Emergency Worker Decontamination

The procedures, facilities, equipment, supplies, and personnel for the radiological monitoring and decontamination of emergency workers were demonstrated by four personnel from the Darlington County Emergency Medical Services and the one person from the Darlington County Fire District Station 8. These personnel demonstrated the ability to control radiation exposure while monitoring and decontaminating emergency workers, their vehicles, and equipment.

- **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

2.3 LEE COUNTY

2.3.1 Emergency Operations Center

The Lee County EOC is located in a newly renovated building adjacent to the police department in Bishopville, South Carolina. The EOC is a clean, well-lighted and well-equipped structure and capable of sustaining continuous operations. A newly trained EOC staff demonstrated operational capabilities and knowledge of response requirements exceptionally well as a team. The Emergency Preparedness Director provided excellent direction and control to the staff with frequent EOC briefings and consultation with county and city officials. All communication equipment performed without error, and backup communications was available with two RACES operators. Status boards, maps and displays were updated in a timely manner and positioned so all EOC staff could see.

a. MET: Objectives 1, 2, 3, 4, 9, 10, 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 Traffic Control Points

Traffic control point activities were discussed at the EOC with a Lee County Deputy Sheriff. This Deputy demonstrated an exceptional understanding of radiological exposure control. It is unusual to find this depth of radiological exposure knowledge among people that do not work in this field on a day to day basis. The Deputy was also very knowledgeable concerning evacuation, in-place sheltering, reception center and congregate care center locations.

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a. MET: Objectives 5 and 17

b. **DEFICIENCY:** NONE

- c. AREAS REQUIRING CORRECTIVE ACTION: NONE
- d. NOT DEMONSTRATED: NONE

e. **PRIOR ARCAs - RESOLVED:**

Issue No.: 54-97-05-A-04

Description: The Lee County Deputy Sheriff who was interviewed for the TCP had the appropriate dosimetry but had not been trained in its use and purpose.

Corrective Action Demonstrated: The Lee County Deputy Sheriff interviewed during this exercise was very knowledgeable concerning emergency worker exposure control. The Sheriff's Department is instituting radiological training as a part of their continuing annual training program. This demonstrated ability along with an on-going training program corrects this ARCA.

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

2.3.3 Emergency Worker Decontamination

Emergency worker monitoring and decontamination was successfully demonstrated by members of the Bishopville City Fire Department at the City Fire Station. One emergency worker and one vehicle were monitored using Ludlum Model 3 equipment. Decontamination procedures were discussed during a walk-through. Monitoring/decontamination personnel were issued a simulated thermoluminescent dosimeter (TLD) and a direct-reading dosimeter (0-5R). Dosimeter readings were made at 15-30 minute intervals and recorded. 0.1R call-in and 1.0R turn-back values were used. KI was available. Communications capability from the fire station was excellent.

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a. MET: Objectives 4, 5 and 22

b. DEFICIENCY: NONE

c. AREAS REQUIRING CORRECTIVE ACTION: NONE

d. NOT DEMONSTRATED: NONE

e. **PRIOR ARCAs - RESOLVED:**

Issue No.: 54-97-22-A-05

Description: The EW Decontamination Station in Fire Station #11 was not appropriately set up. Although they had areas delineated for monitoring vehicles, and a portable shower stall set up in one of the equipment bays, there was no pattern established for the movement of contaminated and clean individuals through the station. The two individuals staffing the EW decontamination station did not have any dosimetry; When asked about TLDs they stated that they were at the EOC and the direct-reading dosimeters were at the reception center/congregate care center location. The monitor was uncertain of the function of the EW decontamination station in relation to the reception center where the rest of this staff was located. When asked what the trigger level for decontamination was for personnel he stated 1,650 which was the trigger level in counts per minute for the decontamination of a vehicle.

When asked about the decontamination of evacuee vehicles at the reception center at the South Carolina National Guard Armory in Bishopville, he stated that the vehicles would be sent to the EW Decontamination Station.

Corrective Action Demonstrated: The emergency worker monitoring and decontamination facility for Lee County has been relocated to the Bishopville City Fire Station and the City Fire Chief and his staff have the responsibility of performing this task. During this exercise the monitoring and decontamination

personnel had a simulated TLD and each team had a 0-5R direct reading dosimeter. All functions of emergency worker monitoring and decontamination were demonstrated. The facility provides sufficient space to separate contaminated workers, vehicles and equipment from workers, vehicles and equipment that are not contaminated.

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

2.3.4 Reception and Congregate Care Center

Lee County established their reception center out-of-sequence at the Bishopville City Warehouse and their congregate care center a short distance away at Bishopville High School. Both locations provide sufficient space and amenities for these activities. The Lee County Fire Department and Department of Social Services (DSS) at the reception center and the Central South Carolina American Red Cross and DSS at the congregate care center demonstrated an excellent understanding of duties and performed those duties well. Cooperation between teams was outstanding.

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- a. MET: Objectives 5, 18 and 19
- b. **DEFICIENCY:** NONE
- c. AREAS REQUIRING CORRECTIVE ACTION: NONE
- d. NOT DEMONSTRATED: NONE
- e. **PRIOR ARCAs RESOLVED:**

Issue No.: 54-97-18-A-06

Description: The reception center was established outside the Armory. A portal monitor was set up on the sidewalk, and two portable showers were set up outside without privacy screening. The reception center was not appropriate for cold or inclement weather. Contaminated and clean individuals were directed over the same path to the congregate care center or the portable showers, which could allow contamination to be tracked into the congregate care center.

Evacuee vehicle monitoring was not demonstrated. When asked about decontamination of vehicles, the EW stated that the vehicles would be monitored at the EW decontamination station and the people would be bused to the congregate care center.

Corrective Action Demonstrated: Relocating the reception center from the armory to the Bishopville City Warehouse resolved this ARCA. The new location

provides sufficient indoor space for evacuee monitoring and decontamination. Outdoor space is sufficient to monitor and decontaminate vehicles and quarantine vehicles that could not be decontaminated.

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

3. HOST JURISDICTION

3.1 FLORENCE COUNTY

3.1.1 Reception and Congregate Care

Florence County, a host county, demonstrated the capability of monitoring, decontamination, registration and sheltering evacuees from Darlington County at the South Florence High School. This demonstration was held out-of-sequence. All county monitors were issued TLDs and direct-reading dosimeters. Six individuals were monitored, using the Ludlum Model 52 portal monitor, in 10 minutes. The Ludlum Model 3 was used for monitoring vehicles and the re-monitoring of individuals. Each instrument had been calibrated within the last 6 months. The congregate care center was staffed by the ARC, DSS, school security, DHEC and the Southern Baptist Disaster Relief Team. All workers performed their duties well. The school is ARC approved as a shelter for 3,060 individuals. During Hurricane Floyd, in September 1999, shelter was provided for 600 evacuees.

- **a. MET:** Objectives 5, 18 and 19
- b. **DEFICIENCY:** NONE
- c. AREAS REQUIRING CORRECTIVE ACTION: NONE
- d. NOT DEMONSTRATED: NONE
- e. **PRIOR ARCAs RESOLVED:**

Issue No.: 54-97-18-A-07

Description: The City and County Fire Departments' staff members were unsure of the monitoring instrument's use and procedures; There appeared to be some confusion between the County DSS and the ARC staff differentiating responsibilities of the reception center and the shelter operations.

Corrective Action Demonstrated: The City Fire and Rescue Department has well defined roles and responsibilities for monitoring and decontamination, and were familiar with the monitoring equipment and procedures. The ARC and DSS

demonstrated clear responsibilities in the activities of the reception center and shelter operations. The actions of the staff attested to the effective training they had received. The Radiological Officer was present and actively involved in the process.

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

4. SUMMARY OF DEFICIENCIES AND/OR AREAS REQUIRING CORRECTIVE ACTION (ARCA)

4.1 1999 ARCAs

4.1.1 54-99-07-A-01

Description: No data, from either the utility or DHEC field teams is received at DHEC Dose Assessment. Consequently, actual doses received in the field are not considered by DHEC Dose Assessment, in making their recommendations for protective actions to Emergency Preparedness Division (EPD) via the DHEC liaison at the SEOC. Only DHEC field team data is transmitted to the Directory of the Laboratory who is dependent upon Dose Assessment to send copies of dose projections in order to evaluate the consistency of the projections against the actual data. No dose projections were transmitted to the Director during this exercise. It was not clear how the Director's evaluation is input into the decision making process, but in any case this evaluation process imposes an additional delay in the decision making process as well as lending itself to failure to protect the public if such evaluations are not make.

Recommendation: Both State and utility field team data should come directly to DHEC Dose Assessment to be considered along with computer dose modeling programs in making recommendations for protective actions to the SEOC.

Schedule of Corrective Action: We have reviewed our current procedures and plans and are in the process of making changes to these documents to reflect the receipt of field data to a centralized location during an exercise. Modifications will be made to both STRERP and our Standard Operating Procedures (SOP) to identify a centralized field data collection location for exercise situations where the FEOC and the DHEC Mobile Laboratory are not a part of the scheduled exercise's extent-of-play agreement. Our current plans are to make these necessary procedure changes and train our personnel on the changes in time to exhibit these changes during the March 29, 2000 exercise with Plant Vogtle.

4.2 PRIOR ARCAs UNRESOLVED

4.2.1 54-97-14-A-01

Description: The decision to ingest potassium iodine (KI) was not communicated to the field teams by DHEC.

Schedule of Corrective Actions: This exercise was not a full participation exercise for the State of South Carolina and therefore field teams were not deployed. The State of South Carolina plans to demonstrate the correction of this ARCA during a full participation exercise in 2000.

4.3 PRIOR ARCAs RESOLVED

4.3.1 54-97-08-A-02

Description: The field teams did not use the rotometer indicated airflow correction factor to report the correct volume of air sampled. Too much time was spent assembling equipment in the radiation area and the correct fixed geometry was not maintained when counting the zeolite cartridge.

Corrective Action Demonstrated: During the August 18, 1998 exercise at the Oconee Nuclear Station, field monitoring teams did use the rotometer airflow correction factor to report the correct volume of air sampled and assembled the equipment properly and correct fixed geometry was maintained when counting the zeolite cartridge.

4.3.2 54-97-24-A-03

Description: The field teams collected leaves from trees for the vegetation sample. The purpose for vegetation sampling is to obtain representative samples for determining deposition on vegetation. Leaves off of trees are not representative since they are shielded from the radioactive fallout by the tree. The soil sampling procedure requires that soil samples be taken from an area two-inches in diameter by one-inch deep. Both field teams used a small trowel to scoop enough soil to fill a 400-ml container,

which resulted in unknown surface area, thereby creating an unknown soil sample.

Corrective Action Demonstrated: During the July 21. 1999 exercise at the V. C. Summer Nuclear Station this ARCA was corrected. The revised SOP 7.2 Vegetation Sampling, dated October 1998, now states: "Select an area where grass, weeds, crops, etc. are present in an open area not sheltered by trees. A broad leaf tree that is approximately shoulder height that is not sheltered by taller trees may be sampled if ground vegetation is not available," has been included in the methods of collection for vegetation sampling. In the revised SOP 7.2, Soil Sampling, dated October 1998, a template with a 5" by 5" opening of the template to completely fill the 400-ml container and then place a lid securely on the container," has been added. Both field teams correctly collected a vegetation and soil sample.

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 the V. C. Summer exercise. The message should have directed the general public to review the current V. C. Summer calendar for additional emergency information.

Corrective Action Demonstrated: 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.

Description: The Lee County Deputy Sheriff who was interviewed for the TCP had the appropriate dosimetry but had not been trained in its use and purpose.

4.3.3 61-99-11-A-01 V. C. Summer

4.3.4 54-97-05-A-04

Corrective Action Demonstrated: The Lee County Deputy Sheriff interviewed during this exercise was very knowledgeable concerning emergency worker exposure control. The Sheriff's Department is instituting radiological training as a part of their continuing annual training program. This demonstrated ability along with on-going training corrects this ARCA.

Description: The EW Decontamination Station in Fire Station #11 was not appropriately set up. Although they had areas delineated for monitoring vehicles, and a portable shower stall set up in one of the equipment bays, there was no pattern established for the movement of contaminated and clean individuals through the station. The two individuals staffing the EW decontamination station did not have any dosimetry; When asked about TLDs they stated that they were at the EOC and the direct-reading dosimeters were at the reception center/congregate care center location. The monitor was uncertain of the function of the EW decontamination station in relation to the reception center where the rest of this

care center location. The monitor was uncertain of the function of the EW decontamination station in relation to the reception center where the rest of this staff was located. When asked what the trigger level for decontamination was for personnel he stated 1,650 which was the trigger level in counts per minute for the decontamination of a vehicle.

When asked about the decontamination of evacuee vehicles at the reception center at the South Carolina National Guard Armory in Bishopville, he stated that the vehicles would be sent to the EW Decontamination Station.

Corrective Action Demonstrated: The emergency worker monitoring and decontamination facility for Lee County has been relocated to the Bishopville City Fire Station and the City Fire Chief and his staff have the responsibility of performing this task. During this exercise the monitoring and decontamination personnel had a simulated TLD and each team had a 0-5R direct reading dosimeter. All functions of emergency worker monitoring and decontamination were demonstrated. The facility

4.3.5 54-97-22-A-05

provides sufficient space to separate contaminated workers, vehicles and equipment from workers, vehicles and equipment that are not contaminated.

4.3.6 54-97-18-A-06

Description: The reception center was established outside the Armory. A portal monitor was set up on the sidewalk, and two portable showers were set up outside without privacy screening. The reception center was not appropriate for cold or inclement weather. Contaminated and clean individuals were directed over the same path to the congregate care center or the portable showers, which could allow contamination to be tracked into the congregate care center.

Evacuee vehicle monitoring was not demonstrated. When asked about decontamination of vehicles, the EW stated that the vehicles would be monitored at the EW decontamination station and the people would be bused to the congregate care center.

Corrective Action Demonstrated: Relocating the Reception Center from the armory to the Bishopville City Warehouse resolved this ARCA. The new location provides sufficient indoor space for evacuee monitoring and decontamination. Outdoor space is sufficient to monitor and decontaminate vehicles and quarantine vehicles that could not be decontaminated.

Description: The City and County Fire Departments' staff members were unsure of the monitoring instrument's use and procedures; There appeared to be some confusion between the County Department of Social Services and the ARC staff differentiating responsibilities of the reception center and the shelter operations.

Corrective Action Demonstrated: The City Fire and Rescue Department has well defined roles and responsibilities for monitoring and decontamination, and were familiar with the monitoring equipment and procedures. The ARC and DSS demonstrated clear responsibilities in the activities of the reception

4.3.7 54-97-18-A-07

center and shelter operations. The actions of the staff attested to the effective training they had received. The RAD Officer was present and actively involved in the process.

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APPENDIX 1

ACRONYMS AND ABBREVIATIONS

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

ANI	American Nuclear Insurers
ARC	American Red Cross
ARCA	Area Requiring Corrective Action
ALARA	As Low As Reasonably Achievable
CAP	Civil Air Patrol
CFR	Code of Federal Regulations
CP&L	Carolina Power and Light Company
CPM	Counts Per Minute
DHEC	Department of Health and Environmental Control
DHHS	Department of Health and Human Services
DOC	Department of Commerce
DOE	Department of Energy
DOI	Department of the Interior
DOT	Department of Transportation
DRD	Direct Reading Dosimeter
DSS	Department of Social Services
EAL	Emergency Action Level
EAS	Emergency Alert System
ECL	Emergency Classification Level
EEM	Exercise Evaluation Methodology
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EOP	Extent of Play
EPA	Environmental Protection Agency
EPD	Emergency Preparedness Division
EPZ	Emergency Planning Zone
EW	Emergency Worker
FAA	Federal Aviation Agency
FEMA	Federal Emergency Management Agency
FR	Federal Register
ft/min	feet per minute
ft³/min	cubic feet per minute

GE GM	General Emergency Guidance Memorandum	
IP IRIS ЛС	Implementing Procedure Internet Routed Information System Joint Information Center	
KI	Potassium Iodide	
mR mR/h	milliroentgen per hour	
NRC NUREG-0654	U.S. Nuclear Regulatory Commission NUREG-0654/FEMA-REP-1, Rev. 1, "Criteria for Preparati Evaluation of Radiological Emergency Response Plans and P in Support of Nuclear Power Plants," November 1980	on and reparedness
ORO	Offsite response organizations	
PAD PAR PIO	Protective Action Decision Protective Action Recommendation Public Information Officer	•
R RAC RACES RDO REP RERP R/h	Roentgen Regional Assistance Committee Radio Amateur Civil Emergency Service Radiological Defense Officer Radiological Emergency Preparedness Radiological Emergency Response Plan Roentgen(s) per hour	
SAE SCSHP SEOC	Site Area Emergency South Carolina State Highway Patrol State Emergency Operations Center	
ТСР	Traffic Control Point	
TLD	Thermoluminescent Dosimeter	
USDA	U.S. Department of Agriculture	

APPENDIX 2

EXERCISE EVALUATORS

The following is a list of the personnel who evaluated the H. B. Robinson Nuclear Station exercise on December 7, 1999. The organization which each evaluator represents is indicated by the following abbreviations:

ANL	- Argonne National Laboratory
DOT	- Department of Transportation
FEMA	- Federal Emergency Management Agency
NRC	- Nuclear Regulatory Commission
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Lawrence A. Robertson

RAC Chairman

EVALUATION SITE	EVALUATOR	ORGANIZATION
State Emergency Operations Center	Tom Reynolds Harold Dorminey	FEMA DOT
Radiological Liaison	Tom Reynolds	FEMA
Dose Assessment	Bernie Hannah	ANL
Emergency Operations Facility	Bob Trojanowski	NRC
Joint Information Center	Jim Sutch	ANL
LP-1 Radio Station WJMX	Sandra Bailey	ANL

CHESTERFIELD COUNTY

Emergency Operations Center	Robert Perdue	FEMA
Protective Actions for Schools	Wayne Waddell	ANL
Traffic Control Points	Wayne Waddell	ANL
Lake Clearing	Dave Moffet	ANL
Emergency Worker Decontamination	Dave Moffet	ANL
Reception/Congregate Care Center	Dave Moffet	ANL

EVALUATION SITE

EVALUATOR

ORGANIZATION

DARLINGTON COUNTY

Emergency Operations Center	Joseph Canoles	FEMA
Protective Actions for Schools	Eddie Hickman	FEMA
County Traffic Control Point	Eddie Hickman	FEMA
Emergency Worker Decontamination	Bill Serrano	ANL
State Traffic Control Point	Bill Serrano 5	ANL
LEE COUNTY		
Emergency Operations Center	Don Cornell	FEMA
Traffic Control Points	Al Hall	ANL
Emergency Worker Decontamination	Al Hall	ANL
Reception/Congregate Care	Al Hall	ANL
FLORENCE COUNTY		
Reception and Congregate Care	Josh Moore	ANL

APPENDIX 3

EXERCISE OBJECTIVES AND EXTENT-OF-PLAY AGREEMENT

This appendix lists the exercise objectives, which were scheduled for demonstration in the H. B. Robinson Nuclear Station exercise on December 7, 1999 and were submitted with the extent-of-play agreement submitted by the State of South Carolina and approved by FEMA Region IV.

A. Exercise Objectives

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

H. B. Robinson Steam Generating Plant, Unit 2 REP Exercise Objectives, December 7, 1999

n. D. Robinson steam							1
SITE: H.BROBINSON		/	075	~/	/	/	
STATE: SOUTH CAROLINA		1 ^T	ERFI	5	ACE V		
EX DATE: <u>12/07/99</u>		15	1237				
TYPE: <u>Partial</u>					4	¥/	/
1 Mob Emerg Personnel	<u> </u>		<u> </u>				A
2 Facil. / Equip. / Display	\checkmark		✓				
3 Direction & Control	<u> </u>	V	<u> </u>	ļ	V		
4 Communications	<u> </u>		V,				
5 Emerg. Work Exposure Control							в
6 Fld. Mon - Ambient							E
7 Plume Dose Projection	<u> </u>			ļ			N
8 Field Monitoring lodine							N
9 Plume Protective Action	\checkmark		✓				A
10 Alert / Notification	\checkmark		V	:			L
11 Public Instr. / Emerg. Info.			<u> </u>	-			
12 Emerg. Info - Media	\checkmark						1 1
13 Emerg. info - Rumor Control	\checkmark	\checkmark	\checkmark				
14 KI-Emer Wkr/Gen Population	\checkmark	V	\checkmark				в
15 Special Population		V	V				
16 School							SE
17 Traffic Control	\checkmark				✓		EP
18 Reception Ctr-Reg/Mon		✓		V			
19 Congregate Care							
20 Med Services Transport						ļ	A A
21 Med Services Facility				<u> </u>			
22 Decon-Emer Wkr/Veh Equip	-						
23 Supplementry Assistance							с
24 Post Emergency Sampling							
25 Post Emergency Lab.							0
26 IPZ-Dose Projection Prot Act							N 6
27 IPZ-Prot Action Implementation							E
28 RRR-Decision Making							
29 RRR-Implementation							
30 24 hr Capability - Shift Change							ER
31 Evac on-Site Personnel							RS
32 Unannounced Exercise							Y
}	I		1	1	1	1	1

EXTENT OF PLAY AGREEMENT H. B. Robinson Steam Generating Plant, Unit 2 Radiological Emergency Preparedness Exercise December 7, 1999

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

OBJECTIVES DEMONSTRATION

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- All State and local government personnel will be prepositioned. State participants include the Emergency Preparedness Division (EPD); Department of Health and Environmental Control, Bureau of Land Waste Management, and the Department of Social Services. A simulation cell will represent the Office of the Adjutant General; Department of Health and Environmental Control, Emergency Medical Services; Department of Mental Health; Department of Public Safety, Highway Patrol; Department of Natural Resources, Law Enforcement; and the South Carolina Army National Guard located at the SEOC. Procedures to mobilize personnel will be demonstrated. Alert rosters will be provided to FEMA evaluators and a discussion of call-down procedures will be conducted.
- 3 Direction and Control will take place at the State Emergency Operations Center (SEOC), Columbia, SC; Chesterfield County EOC; Darlington County EOC and Lee County EOC.
- 5 Emergency worker exposure rates will be provided by exercise controller staff. Rates will not be scenario dependant. TLDs will be simulated by empty TLD holders.
 - The scenario will contain a simulated release. Dose assessment will be evaluated at the DHEC Command Center in Columbia.
- 10 Sirens will be simulated in a silent test mode and EAS activated at SAE and simulated at GE. The initial EAS message will comply with the February 2, 1999 memorandum from Kay Goss on *Guidance for Providing Emergency Information and Instructions to the Public for Radiological Emergencies Using the New Emergency Alert System.* 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, WJMX. Department of Natural

Resources, Law Enforcement will demonstrate Lake Clearing Operations via discussion at the Lake Robinson Public Boat Ramp in Chesterfield County, 9:00 a.m. (Boat ride optional).

12 Mock media will be used at the JIC. Copies of EAS messages and emergency public information news releases, that would be aired in an actual emergency, will be provided to FEMA evaluators.

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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 log of rumor calls to the FEMA evaluator. Florence county will not be evaluated for rumor control or PIO activities. Request informal evaluation of Florence County PIO.

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

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.

School PADs will be simulated.

School notification will take place.

Discussion (interviews) with county principals, transportation coordinators and law enforcement personnel will take place at:

County School Location Time

Chesterfield County: Plain View Elem County EOC TBD Darlington County: Carolina Elem County EOC TBD Hartsville HS Hartsville JH

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. State Traffic Control Point 16-A will be evaluated on-scene. A member from the SC Department of Public Safety, Highway Patrol and the SC Department of Transportation will be present State TCP to be evaluated on location is:

16-A, SC 151 and Hwy 23

Chesterfield, Darlington and Lee County Traffic Control Points will be evaluated at the respective County EOCs. If detour signs or other blockade materials are used, a member from the affected Department of Transportation will be present to describe how the materials will be transported and emplaced.

County Traffic Control Points to be evaluated are:

Chesterfield: ⑤ US 9 & SC 145 Darlington: 16-E, SC 151 & US 15 Lee: US 15 & SR 34

Chesterfield, Lee and Florence County reception centers and shelters will be opened out of sequence. Monitoring, decontamination and registration will be performed. Procedures that assure that only noncontaminated 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).

County Reception Centers/Shelters to be evaluated are:

Chesterfield: Chesterfield High School Florence: South Florence High School Lee: Bishopville High School

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18/19

County Emergency Worker Decontamination will be demonstrated in accordance with local SOPs. 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).

County Emergency Worker Decontamination Points to be evaluated are:

Chesterfield:Chesterfield High SchoolDarlington:Industrial Park Fire DepartmentLee:Bishopville Fire Department

VI. OTHER EXTENT OF PLAY CONSIDERATIONS:

A. Reactor Trip Time: 8:30 a.m.

- B. Release Start Time: 12:00 p.m.
- C. RAC Briefing: 2:30 p.m., December 6, 1999 at the Darlington County EOC, SC-151 and Rogers Road, Darlington, S.C.
- D. Participants Critique: 10:00 a.m., December 9, 1999 at the Darlington County EOC, SC-151 and Rogers Road, Darlington, S.C.
- E. Public Critique: 11:00 a.m., December 9, 1999 at the Darlington County EOC, SC-151 and Rogers Road, Darlington, S.C.

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 H. B. Robinson exercise on December 7, 1999.

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

H.B. Robinson Steam Electric Plant Unit No. 2 Biennial Graded Exercise December 07, 1999 Narrative Summary and Timeline

Note

This exercise is a Biennial Graded Exercise, with partial participation by the State and County agencies. The exercise will be conducted with the Control Room simulator in the interactive mode. All times are for planning purposes and may vary (except the start of the release) due to the response of the operations Crew located in the Simulated Control Room.

At 0630 on December 7, 1999, H. B. Robinson Steam Electric Plant (HBRSEP) Unit No. 2 is at 100 percent power and at the beginning of core life and has been in continuous operation for 43 days. Rolling brown outs have occurred due to some Y2K problems associated with the Pearl Harbor computer virus. Random occurrences of the virus along the Eastern Seaboard have made grid loads critical as well as presenting a slightly destabilized electrical grid in the Southeastern United States.

The weather conditions include the wind direction from the North Northeast from about thirty degrees with variable wind speeds of five to ten miles per hour. Temperatures will be in the mid-thirties at night and rising to the mid-forties during the day. Partly cloudy skies will dominate the region for the next few days. During the past several weeks rain has inundated the region. Rain totals have exceeded all past records for weekly and daily totals.

Conditions in the plant include the following:

- Steam driven Auxiliary Feedwater Pump is out of service for repairs to the trip throttle valve.
- All other Caution Tags/Caps installed are consistent with the current plant conditions.
- Fuel leakage below tech spec requirements has been evident over the last three days. There is currently no Loose Parts Monitoring System indication. An event review team is currently investigating the cause of the high activity.

At approximately 0710, the Operations Crew will accept the watch taking control of the plant. At approximately 0715, a condensate leak will develop on the southwest side of the Condensate Storage Tank (CST) due to a ruptured vertical weld seam approximately one foot from the ground. The initial leak rate is 5,000 gallons per minute (gpm). Once the head pressure is reduced (at CST level of approximately 45 %) the leak will slow to 2,000 gpm. This leak can not be isolated. All repair attempts will fail. An alternate source of makeup water should be established in accordance with (IAW) OP-915. The crew may elect to align to a backup supply (Service Water or Deepwell) to the AFW

Pumps suction IAW OP-402. Due to the rapid reduction in CST level, the crew may conservatively decide to commence a plant shutdown.

At 0745, a blown power fuse on Power Range Nuclear Instrument NI-43 will cause a Turbine Runback. The crew will respond IAW AOP-015, Secondary Load Rejection or Turbine Runback, and will stabilize the plant at 65 %.

At 0830, a Main Steam Line Break (5E6 lbm/hr) outside of the CV will occur resulting in a Reactor Trip and Safety Injection. The rupture will be down stream of the R-31 monitor and upstream of the Main Steam Isolation Valve (MSIV). The actual pipe failure will be located at the intersection of the pipe and brace. The crew will respond IAW PATH-1, and should diagnose the failure of the Main Steam Isolation Valves (MSIVs) to automatically close. The crew will transition to EPP-11, Faulted S/G Isolation will be directed. "A" Emergency Diesel Generator (EDG) not start. Conditions will be met for the declaration of an Unusual Event. Declaration of the Unusual Event should be completed by 0845.

State Warning Point (SWP) verifies county notification and notifies DHEC.

DHEC assesses the situation with the plant and confirms with SCEPD.

SCEPD notifies the Governor's Office and the Office of the Adjutant General (OTAG).

Darlington County provides fire, medical or security assistance, if required.

Fuel Failure will escalate as a result of the Reactor Trip. Additional activity will be found in the area surrounding the Volume Control Tank room and Seal Water Return filter. Activity will be high due degradation of the fuel at this time.

At approximately 0930, a Loss of Offsite Power will occur due to an electrical failure of the Start up Transformer. The failure is due to the explosion of the top line insulator. "B" EDG (which was running unloaded due to the SI) trips as a result of the electrical perturbation. Transition to "EPP-1 Loss of All AC Power" should be made by the crew. "B" EDG will be manually (locally) started within ten minutes. Conditions will be met for the declaration of an ALERT due to E1/E2 de-energized for less than 15 minutes. Declaration of the ALERT should be completed by 0945.

SWP verifies the notification of the affected counties (Chesterfield, Darlington and Lee), notifies SCEPD Operations Officer, and relays the information to DHEC. DHEC assesses the situation with the plant, confirms with SCEPD and recommends response required. SCEPD notifies the Governor's Office, OTAG, NC, GA and FEMA. SCEPD staff activate the SEOC and consider dispatch and activation of the Forward Emergency Operations Center. SCEPD notifies other State Emergency Response Team (SERT) members to be on standby status (e.g. those required for evacuation and dispatch to nearsite duty stations. The affected counties augment resources and bring EOCs to standby status.

Once 480V Bus 2 is energized, the Motor Driven Auxiliary Feedwater Pump will start and will continue to run for approximately 20 minutes. At approximately 1030, the 'B' MDAFW pump will trip. The breaker will reset but will not result in restart of "B" MDAFW. This is due the malfunction of the valve in the discharge line not allowing flow.

At 1045, conditions will exist for the declaration of a Site Area Emergency due to loss of Secondary Heat Sink. Due to loss of feedwater flow, Operations crew will transition into FRP-H.1, Response to Loss of Secondary Heat Sink. (Declaration of the Site Area Emergency should be completed by 1100.)

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 Selective Signaling System (SSS) Decision Line.

The decision to activate the sirens and Emergency Alert System (EAS) is made by SCEPD and coordinated with the affected county directors via the SSS Decision Line. Activation of the sirens will be simulated with a silent test (results will be provided to the FEMA Evaluator at the HBRSEP Emergency Operations Facility [EOF]). SCEPD coordinates EAS messages with EAS radio stations.

SCEPD notifies SERT members to send representatives to the SEOC (prepositioned).

SCEPD and DHEC dispatch State Liaison Officers to Chesterfield, Darlington and Lee counties and to the HBRSEP EOF (prepositioned).

SCEPD dispatches public information group to the HBRSEP Joint Information Center (JIB) (prepositioned).

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

SCEPD considers activation of dosimetry redistribution SOP.

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

Chesterfield, Darlington, Florence and Lee county public information representatives are dispatched to the JIB (prepositioned).

Affected counties activate EOCs and emergency personnel to full status (prepositioned).

Affected counties issue dosimetry to emergency workers and direct protective actions as recommended and deemed appropriate.

At approximately 1200, the plant will experience a guillotine steam generator tube leak. The guillotine steam generator tube leak was due to the drying out of the "A" Steam Generator. The affected tubes are located at the top of "A" Steam Generator. The release will start due to the ruptured steam line in conjunction with the damage "A" Steam Generator. The release Offsite will impact portions of both Darlington County and Lee County The major portion of the release will be found in the North East section of Lee county that protrudes into the ten mile area surrounding the HBRSEP. At approximately 1200 R-31A will alarm indicating that an offsite release is occurring. This will allow the determination to be made that the breach of the third fission product barrier has occurred. (A declaration of a General Emergency should be made at this time. This declaration should be completed by 1215.)

SCEPD verifies affected county notification.

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

SCEPD coordinates siren sounding time and EAS message time via SSS Decision Line with the affected county directors. Siren sounding will be a silent test and EAS will be simulated.

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, offsite 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.

From 1200 until the end of the Biennial Graded exercise HBRSEP Environmental Monitoring teams will monitor for the plant out to ten miles and determine the activity.

At approximately 1500 the exercise will terminate and after a short break a critique will be conducted in each CP&L facility.

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