



FEMA

August 5, 2010

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

Dear Mr. Reyes:

Enclosed is a copy of the final exercise report for the May 19, 2010, plume exposure pathway exercise of the offsite radiological emergency response plans site-specific to the Vogtle Electric Generating Plant. This report addresses the evaluation of the plans and preparedness for the States of Georgia and South Carolina and Burke County, Georgia as well as Aiken, Allendale and Barnwell Counties in South Carolina. Parts of the Department of Energy's (DOE) Savannah River Site (SRS) are also within the 10-mile EPZ. DOE has responsibility for emergency response actions at the SRS. Although FEMA does not evaluate their participation, SRS regularly participates in these exercises in accordance with their memorandum of understanding with the Vogtle Electric Generating Plant.

State and local organizations demonstrated the ability to implement their emergency response plans and procedures. The exercise highlighted the effective coordination between the States of Georgia and South Carolina. The State of Georgia implemented a new conference call process to coordinate Protective Action Decisions with the State of South Carolina and the risk counties of Aiken, Allendale, Barnwell and Burke dramatically improving the joint decision making process. During this exercise, one Area Requiring Corrective Action (ARCA) was identified in Burke County, Georgia. The ARCA involved training and knowledge of dosimetry requirements. The county immediately conducted training and successfully demonstrated the activity again. With this demonstration the ARCA was resolved. There were no Deficiencies identified. This report was prepared by FEMA Region IV Technological Hazards Branch and copies of this report will be forwarded to the States of Georgia and South Carolina, to FEMA and NRC Headquarters.

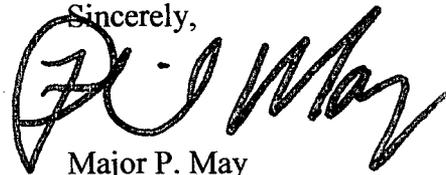
Based on the results of the exercise and FEMA's review of Georgia and South Carolina's Annual Letters of Certification for 2009, the offsite radiological emergency response plans and preparedness for the States of Georgia and South Carolina and the affected local jurisdictions site-specific to the Vogtle Electric Generating Plant can be implemented and are adequate to provide reasonable assurance that

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appropriate measures can be taken offsite to protect the health and safety of the public in the event of a radiological emergency at the site. The Title 44 CFR, Part 350, approval of the offsite radiological emergency response plans and preparedness for the States of Georgia and South Carolina site-specific to Vogtle Electric Generating Plant granted for both States on June 9, 1987, will remain in effect.

Should you have questions, please contact Conrad Burnside at the Atlanta Regional Office at 770/220-5486.

Sincerely,

A handwritten signature in black ink, appearing to read "P. May", written over the word "Sincerely,".

Major P. May
Regional Administrator

Enclosure

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Vogtle Electric Generating Plant Exercise – May 19, 2010

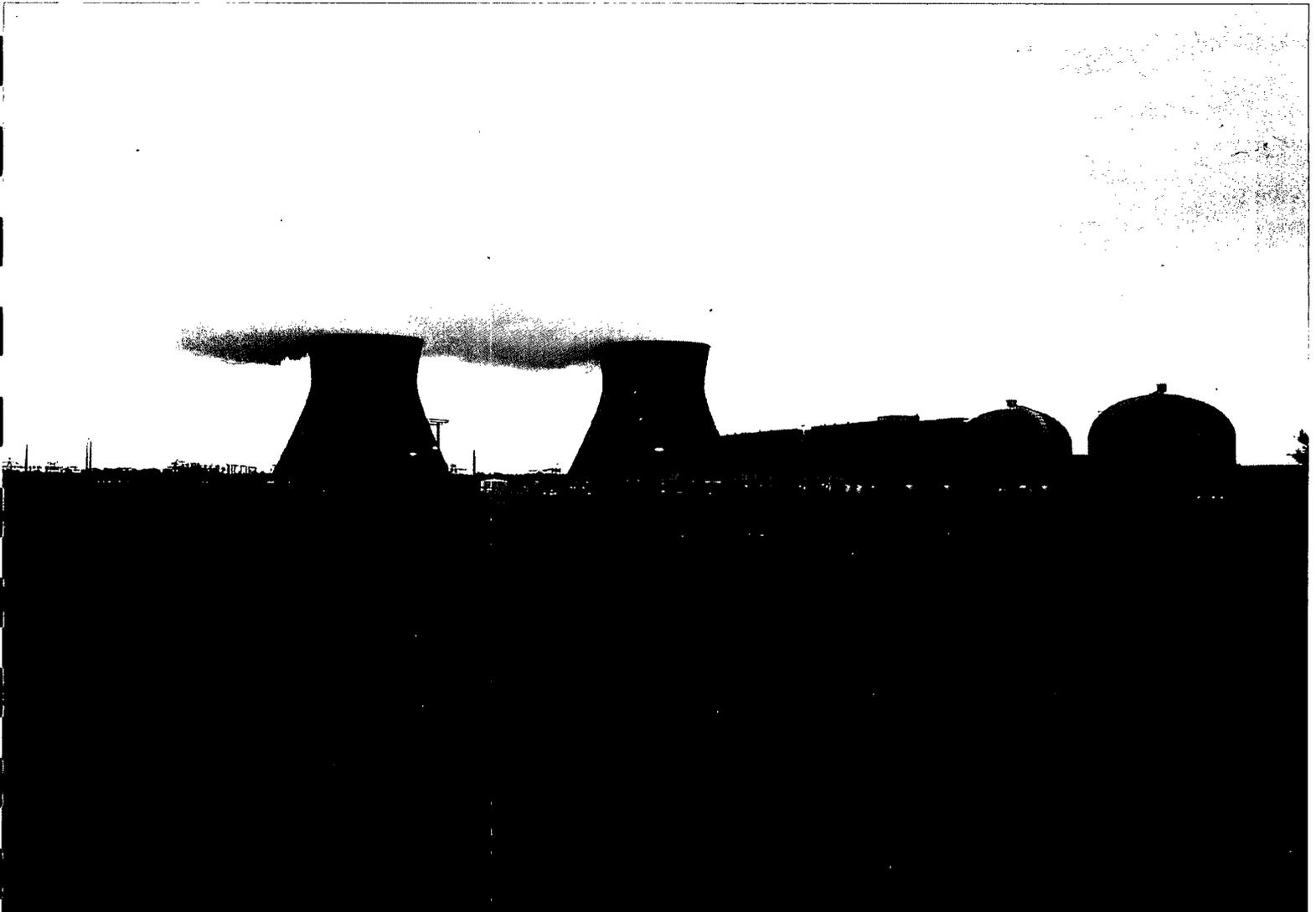
Final Report - Radiological Emergency Preparedness Program

August 5, 2010



FEMA

FEMA Region IV





FEMMA

Final Exercise Report

Vogtle Electric Generating Plant

Licensee: **Southern Nuclear Operating Company**

Exercise Date: **May 19, 2010**

Report Date: **August 5, 2010**

**U.S. DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY
REGION IV**

**3003 Chamblee Tucker Road
Atlanta, Georgia 30341**

Cover photograph accreditation: *Vogtle Electric Generating Plant, 2001.* courtesy of *Southern Nuclear Operating Company, Inc.*

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I. EXECUTIVE SUMMARY

On May 19, 2010, the Department of Homeland Security, Federal Emergency Management Agency (FEMA) Region IV Radiological Emergency Preparedness Program staff evaluated a plume exposure pathway exercise in the emergency planning zone (EPZ) for the Vogtle Electric Generating Plant (VEGP). DHS/FEMA also evaluated out of sequence activities that included: traffic control points; reception and congregate care centers; and emergency worker and equipment monitoring and decontamination. The VEGP EPZ affects both the States of Georgia and South Carolina and counties of Burke, Georgia, Aiken, Allendale and Barnwell, South Carolina. The Department of Energy's (DOE) Savannah River Site (SRS) lies within the 10-mile EPZ for the VEGP and is responsible for emergency response actions within its boundaries. FEMA's responsibility is to evaluate the preparedness of State, local and/or tribal governments.

The objective of the exercise was to assess the level of State and local preparedness in responding to a radiological emergency at VEGP. This exercise was conducted in accordance with FEMA's policies and guidance concerning the exercise of State and local radiological emergency response plans and procedures. The previous federally evaluated exercise at this site was conducted on December 2, 2008. The qualifying emergency preparedness exercise was conducted April 30 thru May 1, 1986.

This exercise highlighted the effective coordination between the States of Georgia and South Carolina during protective action decision-making. The State of Georgia implemented a new conference call process to coordinate Protective Action Decisions with the State of South Carolina and the Risk Counties of Aiken, Allendale and Barnwell. This process improved communications and coordination of the decision making process. South Carolina Department of Health and Environmental Control successfully implemented their new interoperable real time plume tracking software.

State and local staffs of the evaluated emergency operations centers, emergency workers and volunteers each contributed immensely to the success of the response effort. They were knowledgeable of their emergency response plans and procedures, successfully implemented them and exhibited the professionalism necessary for effective communication, coordination and execution that conformed to established policies.

There were no Deficiencies observed during the evaluation. One Area Requiring Corrective Action (ARCA) was observed in Burke County, Georgia during this exercise. The ARCA involved training and knowledge of dosimetry requirements. The county conducted training and successfully re-demonstrated the activity. With this re-demonstration, the ARCA was resolved.

II. INTRODUCTION

On December 7, 1979, the President directed the Federal Emergency Management Agency (FEMA) to assume the lead responsibility for all offsite nuclear planning and response. FEMA became a part of the Department of Homeland Security with its creation in 2002. The Radiological Emergency Preparedness (REP) Program conducts its activities pursuant to Title 44 Code of Federal Regulations (CFR) Parts 350, 351 and 352. These regulations are a key element in the 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 the REP Program'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 (FNF) include the following:

- Taking the lead in offsite emergency planning and in the review and evaluation of radiological emergency response plans (RERP) 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 from the Nuclear Regulatory Commission (NRC) to the REP Program 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 Agriculture
 - Department of Commerce
 - Department of Energy
 - Department of Health and Human Services
 - Department of Homeland Security
 - Department of the Interior
 - Department of Transportation
 - Environmental Protection Agency
 - Food and Drug Administration
 - Nuclear Regulatory Commission.

Field representatives of these agencies serve on a Region IV Radiological Assistance Committee (RAC) which is chaired by FEMA.

Formal submission of the RERPs for the Vogtle Electric Generating Plant (VEGP) to FEMA by the States of Georgia and South Carolina occurred respectively on September 24, 1986, and September 26, 1986. Formal approval of each State's RERPs was granted on June 9, 1987, under 44 CFR 350.

A REP Program plume exposure pathway exercise in the emergency planning zone (EPZ) for the VEGP was conducted on May 19, 2010. Out-of-sequence activities were conducted during the week of May 3-6, 2010, in South Carolina. The out-of-sequence activities evaluated in Aiken, Allendale and Barnwell Counties in South Carolina included: traffic control points, reception and congregate care centers and emergency worker and equipment monitoring and decontamination. FEMA assessed the capabilities of State and local emergency preparedness organizations to implement their RERPs and procedures to protect the public health and safety during a radiological emergency involving the VEGP. This report presents the results of the exercise and findings on the performance by offsite response organizations during a simulated radiological emergency.

The findings presented are based on the evaluations of the Federal evaluator team, with final determinations being made by the RAC Chair and final approval by the Regional Director.

The criteria utilized in the 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 "Interim Radiological Emergency Preparedness Manual," dated August 2002.

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

Section IV, entitled "Exercise Evaluation and Results," presents summary information on the demonstration of applicable exercise criteria at each jurisdiction or functional entity evaluated in a results only format.

III. EXERCISE OVERVIEW

This section contains data and basic information relevant to the May 19, 2010 exercise and out-of-sequence activities. The purpose of the exercise was to test Federal, State and local response capabilities in the area surrounding the VEGP.

A. Plume EPZ Description

The VEGP is located on the Savannah River in the eastern portion of Burke County, Georgia, approximately 26 miles southeast of Augusta, Georgia. The Southern Nuclear Operating Company operates the VEGP. Units 1 and 2 became operational in 1987 and 1989 respectively. The facility uses two pressurized water reactors with a total production capacity of 2,320 megawatts.

Portions of Burke County in Georgia and Aiken, Allendale and Barnwell Counties in South Carolina lie within the 10-mile EPZ. Part of the Department of Energy's Savannah River Site (SRS) also lies within the 10-mile EPZ. SRS is responsible for its emergency response actions. The population of the EPZ is 3,148 in Georgia and 46 in South Carolina. The EPZ is divided into 13 protective action planning zones, 11 in Georgia and two in South Carolina.

B. Exercise Participants

The following agencies, organizations, and units of government participated in the VEGP exercise on May 19, 2010 and/or out-of-sequence activities of May 3-6, 2010.

FEDERAL

Department of Commerce,
National Weather Service
Nuclear Regulatory Commission

STATE OF GEORGIA

Office of the Governor
Georgia Emergency Management Agency
Department of Natural Resources,
Environmental Protection Division
Law Enforcement Division
Department of Agriculture
Georgia National Guard
4th Civil Support Team
Georgia State Patrol

RISK JURISDICTION

Burke County

STATE OF SOUTH CAROLINA

Office of the Governor
Office of the Adjutant General,
Emergency Management Division
Department of Health & Environmental Control,
Bureau of Solid and Hazardous Waste Management
Department of Social Services
South Carolina Highway Patrol

RISK JURISDICTIONS

Aiken County
Allendale County
Barnwell County

PRIVATE/VOLUNTEER ORGANIZATIONS

American Red Cross
Radio Amateur Civil Emergency Services
Salvation Army

C. Exercise Timeline

Table 1, on the following page, presents the time key events and activities occurred during the VEGP exercise on May 19, 2010. Also included are times notifications were made to the participating jurisdictions and functional entities.

Table 1. Exercise Timeline

DATE AND SITE: May 19, 2010 – Vogtle Electric Generating Plant

Emergency Classification Level or Event	Time Utility Declared	Time That Notification Was Received or Action Was Taken						
		GA SOC	ENC	BURKE COUNTY	SC-EMD	AIKEN COUNTY	ALLENDALE COUNTY	BARNWELL COUNTY
Unusual Event	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alert	0900	0915	N/A	0915	0920	0913	0907	0913
Site Area Emergency	0945	1006	0952	0956	1008	0956	0955	1008
General Emergency	1110	1121	1121	1121	1131	1128	1122	1120
Simulated Rad. Release Started	1108	1121	1121	1121	1131	1128	1122	1120
Simulated Rad. Release Terminated	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing
Facility Declared Operational		1010	0958	1052	0950	1023	0945	0935
Declaration of State of Emergency:								
Georgia		1050	N/A	N/A	N/A	N/A	N/A	N/A
South Carolina		1033	1006	N/A	1007	1015	N/A	1005
Local		1031	1050	1011	N/A	N/A	1007	1107
Exercise Terminated		1320	1307	1308	1305	1306	1306	1311
Georgia Early Precautionary Actions: River Clearance: Relocated Special Needs Population; Agricultural Advisory: Hunting and Fishing Prohibited		1111	1035	1022	N/A	N/A	N/A	N/A
South Carolina Early Precautionary Actions: Agricultural Advisory: Hunting and Fishing Prohibited		N/A	1035	N/A	1025	N/A	N/A	N/A
1 st Protective Action Decision: Stay Tuned		1035	----	1035	1035	1035	1035	1035
1 st Siren/NOAA Tone Alert Radio Activation:		1045/1050	----	1045/1050	1045/1050	1045/1050	1045/1050	1045/1050
1 st PNS/EAS Message: Georgia and South Carolina: Yellow Message		1050	----	1050	1050	1050	1050	1050
2 nd Protective Action Decision: Evacuate A, B5, B10, C5, C10, D10 and H10		1155	1155	1155	1155	1155	1155	1155
2 nd Siren/NOAA Tone Alert Radio Activation:		1205	1205	1205	1205	1205	1205	1205
2 nd PNS/EAS Message:		1210	1210	1210	1210	1210	1210	1210
KI Decision:								
Georgia: Did not issue KI to Emergency Workers		1300	N/A	1307	N/A	N/A	N/A	N/A
South Carolina: No Ingestion		N/A	N/A	N/A	1215	N/A	N/A	N/A

IV. EXERCISE EVALUATION AND RESULTS

This section contains the results and findings of the evaluation for all jurisdictions and functional entities that participated in the exercise on May 19, 2010 and out of sequence activities performed during the week of May 3-6, 2010. The exercise tested the offsite emergency response capabilities of State and local governments within the 10-mile EPZ around the VEGP.

Each jurisdiction and functional entity was evaluated based on their demonstration of exercise criteria as delineated in the "Interim REP Manual", dated August 2002. Detailed information on the exercise criteria and the extent-of-play agreement used in this exercise are found in Appendix 3 of this report.

A. Summary of Results of Exercise Evaluation - Table 2:

The matrix presented in Table 2, presents the status of all exercise criteria that were scheduled for demonstration during this exercise, by all participating jurisdictions and functional entities. Exercise criteria are listed by number. The demonstration status of those criteria is indicated by the use of the following letters:

- M - Met (No Deficiency or ARCAs assessed and no unresolved ARCAs from prior exercises)
- D - Deficiency assessed
- A - ARCA(s) assessed or unresolved ARCA(s) from prior exercise(s)

Table 2. Summary Results of Exercise Evaluation

DATE AND SITE: May 19, 2010 - Vogtle Electric Generating Plant

ELEMENT/Criterion	EOF	GA SOC	ENC	DOSE	BURKE COUNTY	SC-SEOC	DHEC DOSE	AIKEN COUNTY	ALLENDALE COUNTY	BARNWELL COUNTY
1. EMERGENCY OPERATIONS MANAGEMENT										
1. a.1. Mobilization	M	M	M	M	M	M	M	M	M	M
1. h.1. Facilities										
1. c.1. Direction and Control	M	M	M	M	M	M	M	M	M	M
1. d.1. Communications Equipment	M	M	M	M	M	M	M	M	M	M
1. e.1. Equipment & Supplies to Support Operations	M	M	M	M	M	M	M	M	M	M
2. PROTECTIVE ACTION DECISION MAKING										
2. a.1. Emergency Worker Exposure Control		M		M	M	M	M	M	M	M
2. b.1. Radiological Assessment & PARs Based on Available Info	M			M			M			
2. b.2. Radiological Assessment and PADs for the General Public		M		M	M	M	M	M	M	M
2. c.1. Protective Action Decisions for Special Populations					M					
2. d.1. Rad Assessment & Decision Making for Ingestion Exposure										
2. e.1. Rad Assmt & Decision Making for Relocation, Re-entry & Return										
3. PROTECTIVE ACTION IMPLEMENTATION										
3. a.1. Implementation of Emergency Worker Control				M	M	M	M	M	M	M
3. b.1. Implementation of KI Decisions				M	M	M	M	M	M	M
3. c.1. Implementation of PADs for Special Populations					M					
3. c.2. Implementation of PADs for Schools					M					
3. d.1. Implementation of Traffic and Access Control					M	M		M	M	M
3. d.2. Impediments to Evacuation and Traffic and Access Control					M	M		M	M	M
3. e.1. Implementation of Ingestion Decisions Using Adequate information										
3. e.2. Implementation of IP Decisions W/ Strategies & Instructional Materials										
3. f.1. Implementation of Relocation, Re-entry and Return Decisions										
4. FIELD MEASUREMENT and ANALYSIS										
4. a.1. Plume Phase Field Measurement & Analysis Equipment				M			M			
4. a.2. Plume Phase Field Measurement & Analysis Management				M			M			
4. a.3. Plume Phase Field Measurements & Analysis Procedures				M			M			
4. b.1. Post Plume Field Measurement & Analysis										
4. c.1. Laboratory Operations										
5. EMERGENCY NOTIFICATION & PUBLIC INFORMATION										
5. a.1. Activation of Prompt Alert and Notification		M			M	M		M	M	M
5. a.2. Activation of Prompt Alert & Notification 15-Minute (Preserved)										
5. a.3. Activation of Backup Alert & Notification										M
5. b.1. Emergency Information and Instructions for the Public and Media		M	M		M	M		M	M	M
6. SUPPORT OPERATIONS/FACILITIES										
6. a.1. Monitoring & Decon of Evacuees & EWs & Registration of Evacuees								M	M	M
6. b.1. Monitoring and Decontamination of Emergency Worker Equipment								M	M	M
6. c.1. Temporary Care of Evacuees								M	M	
6. d.1. Transportation and Treatment of Contaminated Injured Individuals										

LEGEND: M = Met D = Deficiency A = ARCA

B. Status of Jurisdictions Evaluated

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

- **Met** - Listing of the demonstrated exercise criteria under which no Deficiencies or ARCAs were assessed during this exercise and under which no ARCAs assessed during prior exercises remain unresolved.
- **Deficiency** - Listing of the demonstrated exercise criterion under which one or more Deficiencies were assessed during this exercise. Included is a description of each Deficiency and recommended corrective actions.
- **Area Requiring Corrective Actions** - Listing of the demonstrated exercise criterion 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 ARCA assessed during this exercise and the recommended corrective action to be demonstrated before or during the next biennial exercise.
- **Not Demonstrated** - Listing of the exercise criteria, which were not demonstrated as scheduled during this exercise and the reason, they were not demonstrated.
- **Prior ARCAs - Resolved** – Description(s) of ARCA(s) assessed during previous exercises, which were resolved in this exercise and the corrective actions demonstrated.
- **Prior ARCAs - Unresolved** – Description(s) of ARCA(s) 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 may be discussed in this report.

- A **Deficiency** is defined in the FEMA Interim REP Manual 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 the Interim REP Manual 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 DHS/FEMA regional offices 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 include the following elements, with each element separated by a hyphen (-).

- **Plant Site Identifier** – A two-digit number corresponding to the Utility Billable Plant Site Codes.
- **Exercise Year** – The last two digits of the year the exercise was conducted.
- **Criterion Number** – A numerical, alpha, numerical number corresponding to the criteria numbers in the Interim REP Manual
- **Issue Classification Identifier** – (D = Deficiency, A = ARCA). Only Deficiencies and ARCAs are included in exercise reports.
- **Exercise Issue Identification Number** – A separate two-digit number assigned to each issue identified in the exercise.

1. JOINT OPERATIONS

1.1 Emergency Operations Facility

The VEGP Emergency Operations Facility (EOF), located in the utility's corporate offices, Birmingham, Alabama, is an excellent facility from which all participating response organizations can effectively manage ongoing emergency operations.

The States of Georgia and South Carolina, respectively, deployed representatives to the EOF to serve in a liaison capacity between the utility operator and their respective emergency operations centers (EOC).

Communications, coordination and the flow of technical information between the utility operator and all of the participating government officials were outstanding, which facilitated the conduct of independent accident analyses by the participating government agencies.

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

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

1.2 Emergency News Center

The VEGP Emergency News Center (ENC) was rapidly activated by Public Information Officers (PIO) from Georgia, South Carolina and Burke County. The ENC staff developed and disseminated 10 news releases, five by Georgia, five by South Carolina, and prepared for and conducted two media briefings.

- a. **MET:** Criteria 1.a.1, 1.d.1, 1.e.1 and 5.b.1
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

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

1.3 Waterway Warning

Burke County Fire-Rescue and Georgia Department of Natural Resources (DNR) provide the waterway warning activities on the Savannah River in support of an incident at VEGP. Both agencies put boats in the river for this demonstration. Prior to launching, the officers demonstrated their receipt of dosimetry and KI, dosimeter zero process, and record keeping procedures. Subsequent to launching their boats the officers fully described the variety of functions they could perform in a primary or back-up role. They were knowledgeable with the assignments of their areas of responsibility and described with familiarity the planned routes on the river that would be followed. The officers were well trained and their boats were sufficiently equipped for the assigned tasks.

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

1.4 LP-1 Radio Station

Radio Station WBBQ 104.3 was a secure facility. Primary and secondary equipment capabilities and back-up power allow the broadcast of Emergency Alert System (EAS) information to the general public in a timely manner. Although the radio station is not manned 24 hours a day, provisions have been made to allow Burke County to activate the EAS system from the Burke County EOC, or remotely through Clear Channel Corporate Headquarters whenever necessary to inform the public. The system has a built in validation password to protect the integrity of the real EAS messages that need to be broadcast locally. When activated there are several other radio stations in the area that would pick up the broadcast automatically, and relay it out on different frequencies.

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

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

1.5 National Weather Service

The National Oceanic and Atmospheric Administration (NOAA), National Weather Service (NWS), Columbia, South Carolina monitors regional weather, provides regional forecasts, warnings, and manages the regional EAS for emergency public information and warning. The EAS process was coordinated with the Georgia Emergency Management Agency (GEMA) and the EAS test message was targeted for specific counties in Georgia and South Carolina. The NWS staff is well trained and knowledgeable in their duties and successfully demonstrated receipt, coordination, verification and simulated EAS activation in a timely manner.

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

2. STATE OF GEORGIA

2.1 State Operations Center

The Georgia State Operations Center (SOC) Director, with assistance from the Governor's Authorized Representative (GAR) and Radiological Emergency Preparedness (REP) Program Manager, demonstrated effective command and control of the SOC throughout the exercise. The SOC was mobilized and activated in a timely manner and the Director ensured all were kept abreast of evolving conditions through frequent briefings. Staff members were well versed in their responsibilities and proactive in carrying them out, which enabled the Director to focus on his responsibilities. The State of Georgia implemented a new conference call process to coordinate protective action decisions (PADs) with the State of South Carolina and the risk counties of Aiken, Allendale, Barnwell and Burke. This process improved communications and coordination of the decision making process. Coordination with the Georgia DNR, Burke

County, Georgia and the State of South Carolina was conducted for all protective actions. The SOC Director, South Carolina Liaison (SCL), DNR and Burke County Emergency Management Director (EMD) worked well together.

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

2.2 Dose Assessment

Georgia DNR Environmental Protection Division (EPD) personnel staffed the dose assessment function at the SOC. The dose assessment capabilities included making dose projections using the Radiological Assessment System for Consequence Analysis (RASCAL) 3.0.5 and Monitoring, Intrusion Detection, Administration System (MIDAS) applications; managing field monitoring teams (FMT); and making protective action recommendations (PAR) to the GAR. The Radiological Emergency Coordinator (REC) led the dose assessment and FMT functions. The REC conducted routine staff briefings and provided event and plant status to SOC management in a clear and understandable manner. The REC also effectively directed FMTs to locate and characterize the radiological plume while ensuring effective exposure control. Finally, the REC provided PARS to the GAR, as well as, a recommendation not to administer potassium iodide (KI) to emergency workers. The dose assessment staff was knowledgeable of their roles, established operations quickly and effectively, coordinated well as a team, and communicated pertinent information to appropriate response personnel in a timely manner.

- a. **MET:** Criteria 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.1, 2.b.2 and 4.a.2
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ARCAs - RESOLVED:** NONE
- f. **PRIOR ARCAs - UNRESOLVED:** NONE

2.3 Forward Emergency Operations Center

The Field Team Coordinator (FTC) at the Forward Emergency Operations Center (FEOC) managed the two Georgia FMTs to provide the data needed to assess a radioactive materials release from VEGP. The FTC briefed the field teams prior to their deployment about their assigned mission, equipment, plant status, and meteorological conditions. After deployment, the FTC communicated instructions to the FMTs from the REC at the SOC to take ambient radiation readings and collect air samples. The FTC communicated the ambient radiation readings and air sample data reported by the FMTs back to the REC by radio and phone. The FTC and the REC worked well together in developing data needed to support recommendations and decisions. A well trained and effective organization, top to bottom.

- a. **MET:** Criteria 1.a.1, 1.d.1, 1.e.1, 2.a.1 and 4.a.2
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ARCAs - RESOLVED:** NONE
- f. **PRIOR ARCAs - UNRESOLVED:** NONE

2.4 Radiological Field Monitoring Teams

The Georgia EPD, with assistance from the 4th Weapons of Mass Destruction (WMD) Civil Support Team (CST), provided two (2) FMTs. These teams were dispatched from the Burke County EOC. Emergency worker exposure control was successfully demonstrated with appropriate dosimetry use and proper documentation. Team members displayed good communication skills and teamwork. The FMTs demonstrated appropriate surveying, sampling, and counting techniques in order to properly track the plume.

- a. **MET:** Criteria 1.d.1, 1.e.1, 3.a.1, 3.b.1, 4.a.1 and 4.a.3
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ARCAs - RESOLVED:** NONE
- f. **PRIOR ARCAs - UNRESOLVED:** NONE

3. STATE OF SOUTH CAROLINA

3.1 State Emergency Operations Center

The Chief of Operations and Operations Information Officer were in command and control throughout the exercise. The Chief of Operations effectively coordinated with South Carolina counties and the State of Georgia to develop and implement PADs based on recommendations from the utility and Department of Health and Environmental Control (DHEC). The PIO staff prepared and disseminated timely and accurate emergency action and emergency information messages. Overall South Carolina Emergency Management Division (SCEMD) personnel demonstrated the capability to protect public health and safety in the event of an incident at VEGP.

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

3.2 Dose Assessment

DHEC Emergency Response Coordinator (ERC) and dose assessment staff successfully demonstrated the ability to perform dose assessments based on VEGP and FMT data. The ERC effectively formulated PARs based on dose assessment information and provided good leadership for the dose assessment team.

- a. **MET:** Criteria 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.1, 2.b.2 and 4.a.2
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ARCAs - RESOLVED:** NONE
- f. **PRIOR ARCAs - UNRESOLVED:** NONE

3.3 Mobile Operations Center

The DHEC Mobile Operations Center (MOC) staff effectively demonstrated the ability to direct and control FMTs. The MOC staff managed the FMTs to minimize travel time and maximize the data collected. Briefing, dispatch and utilization of the FMTs were directed by the MOC in a well-executed and strategically forward-thinking approach, anticipating potential plume-phase field activities.

- a. **MET:** Criteria 1.a.1, 1.d.1, 1.e.1, 2.a.1 and 4.a.2
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ARCAs - RESOLVED:** NONE
- f. **PRIOR ARCAs - UNRESOLVED:** NONE

3.4 Radiological Field Monitoring Teams

DHEC FMTs mustered and were dispatched from the Aiken County, SC DHEC Environmental Quality Control (EQC) office. The Bravo and Charlie FMTs properly performed equipment, dosimetry, vehicle, and assignment checks according to procedure. Both FMTs effectively demonstrated all field activities such as ambient monitoring, air, soil and vegetation sampling, and contamination control in a timely, efficient, and professional manner, all with due consideration for exposure control.

- a. **MET:** Criteria 1.d.1, 1.e.1, 3.a.1, 3.b.1, 4.a.1 and 4.a.3
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ARCAs - RESOLVED:** NONE
- f. **PRIOR ARCAs - UNRESOLVED:** NONE

4. RISK JURISDICTIONS

4.1 BURKE COUNTY, GEORGIA

4.1.1 Emergency Operations Center

The Emergency Management Agency (EMA) Director displayed excellent direction and control of the EOC. EOC staff members were professional and highly proficient in their approach to tasks, fully conversant with plans and procedures, and proactive in their implementation. The full participation by the County Administrator and the County Commission Chairman demonstrated a commendable leadership commitment to protecting the citizens of the county in the event of an emergency. Particularly worthy of note was the excellent Special Needs database maintained by the EMA staff which was used by the County Health Department and Family/Children Services representatives to perform the timely evacuation of citizens needing assistance. All personnel in the EOC performed professionally and displayed excellent teamwork.

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

4.1.2 Traffic Control Points

The county Traffic Control Points (TCP) were completed through interviews with representatives of the Burke County Sheriff's Office and the Georgia State Patrol. During one demonstration two Sheriff's Deputies did not receive a safety briefing when they were issued the Traffic Control Kits, and were unclear about the function of the permanent record dosimeter (PRD) or when and why to ingest KI. TCPs are pre-identified in the Burke County Radiological Plan and the locations were displayed on a laminated map in the EOC, with color-coded push pins which identified which points were to be manned. The officers were aware of their duties at the TCPs and what instructions they should provide to evacuees and what actions to take to remove any impediments to evacuation routes.

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

b. **DEFICIENCY: NONE**

c. **AREAS REQUIRING CORRECTIVE ACTION: Resolved**

Issue No.: 68-10-3.a.1-A-01

Condition: The Burke County Radiation Protection Officer (RPO) Assistant did not provide a safety briefing when issuing dosimetry kits to the two Burke County Sheriff's Deputies. When interviewed afterward, the deputies were unclear of the function of the PRD and when and why to ingest KI. The Deputies were also unaware of the location of the emergency worker monitoring and decontamination locations.

Possible Cause: No dosimetry briefing was provided to emergency workers during dosimetry issue at the Burke County EOC.

Reference: NUREG 0654 – II, O (Training)

Effect: Emergency workers were sent into the EPZ without adequate knowledge to protect themselves from unacceptable exposure levels.

Corrective Action Demonstrated: The RPO conducted a short training session for his assistants. This training reviewed the proper method to issue dosimetry, to include a briefing which summarizes significant safety issues. The RPO used an existing briefing sheet which was in the dosimetry pack, but was not referenced during the dosimetry issue process.

After this training, the RPO Assistant re-demonstrated dosimetry issue to emergency workers, who were then appropriately knowledgeable about dosimetry use, when and why to ingest KI, and where emergency worker monitoring and decontamination support would be available if necessary.

d. **NOT DEMONSTRATED: NONE**

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

f. **PRIOR ARCAs – UNRESOLVED: NONE**

4.2 AIKEN COUNTY, SOUTH CAROLINA

4.2.1 Emergency Operations Center

The EOC and Warning Point are co-located with the county traffic court, Sheriff's Office and Emergency Services Dispatch Center. The EOC provided an effective working area for the county response staff. The Emergency Management Coordinator (EMC) demonstrated good command and control of the EOC, conducted informative briefings

and solicited staff action input at regular intervals. The County Administrator and Assistant County Administrator were present, participating and monitoring all aspects of the operation. County staff participating in the response was well trained and operated in a professional manner.

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

4.2.2 Reception Center and Congregate Care

Emergency Services personnel assisted by Aiken City Public Safety, County Schools, DHEC, and American Red Cross (ARC) personnel worked together to successfully demonstrate evacuee monitoring and decontamination, evacuee vehicle monitoring and congregate care activities at the South Aiken High School.

Monitoring and decontamination team members were knowledgeable of exposure limits and action levels, proper monitoring techniques and contamination limits, decontamination requirements and procedures, and vehicle monitoring techniques.

ARC personnel, assisted by South Carolina Department of Social Service (DSS), personnel demonstrated the ability to register and provide shelter to evacuees from zone G-10 as directed in the county emergency operations plan. There was more than adequate space in the facility for the limited number of evacuees anticipated for an incident at VEGP. The designated facility and personnel were well prepared to fulfill their responsibilities.

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

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

4.2.3 Emergency Worker & Equipment Monitoring and Decontamination

Emergency worker and vehicle monitoring and decontamination were successfully demonstrated at Redcliffe Elementary School. A pre-briefing was performed onsite and prior to the exercise at the EOC. The briefings covered dose limits and action levels, KI issue and precautions, operation of DRD and how often to read the DRDs and how to document results. Public Works Department personnel staffed the emergency worker and vehicle monitoring and decontamination area. All personnel were knowledgeable of dose limits and action levels, reading and recording requirements for personal dosimetry, contamination limits and actions to take if a limit was exceeded.

The vehicle and personnel monitoring teams displayed excellent monitoring techniques, knowledge of contamination limits and actions to take if contamination was located. The decontamination team was aware of the need to minimize water use to prevent any cross contamination and proper decontamination methods.

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

4.2.4 Traffic Control Points

Sheriff's Office personnel and South Carolina Highway Patrol (SCHP) successfully demonstrated the ability to establish the TCPs designated in the Radiological Response Plan during an out of sequence (OOS) evaluation. The actual demonstration was preceded by radiological and operational briefings for designated law enforcement personnel as described in the Aiken County "Traffic Management Standard Operating Guide for Radiological Incidents, February 2010." Subsequent to the briefings, officers were deployed to two of the County's five TCPs where they described how the TCP would be established and maintained. All aspects of the demonstration conformed to county plans and procedures.

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

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

4.3 ALLENDALE COUNTY, SOUTH CAROLINA

4.3.1 Emergency Operations Center

The EMD and EOC staff successfully demonstrated the ability to protect the safety of the citizens in the event of an incident at VEGP. Alert, notification and mobilization of emergency response personnel were successful. The EMD established and maintained direction and control throughout the exercise. The EOC was activated in a timely manner. The EMD's thorough knowledge of county plans, procedures and resources enhanced the capability to conduct effective emergency operations. All staff members were knowledgeable, and carried out their responsibilities in a professional manner in accordance with plans and procedures.

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

4.3.2 Reception Center and Congregate Care

ARC, DSS and DHEC successfully demonstrated that the Allendale-Fairfield High School shelter facility can provide sufficient resources and services to accommodate evacuating residents and assure that evacuees have been monitored and/or decontaminated prior to entering the congregate care facility.

Monitoring and decontamination team members were knowledgeable of exposure limits and action levels, proper monitoring techniques and contamination limits, decontamination requirements and procedures, and vehicle monitoring techniques.

ARC personnel assisted by DSS personnel demonstrated the ability to register and provide shelter to evacuees from zone H-10 as directed in the county emergency operations plan. There was more than adequate space in the facility for the limited number of evacuees anticipated for an incident at VEGP. The designated facility and personnel were well prepared to fulfill their responsibilities.

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

4.3.3 Emergency Worker & Equipment Monitoring and Decontamination

The Allendale-Fairfax High School Congregate Care Center and Emergency Worker Decontamination center was supported by the Allendale County Fire and Rescue Department, Allendale County Emergency Medical Services (EMS), County DSS, Allendale County Sheriff's Office and ARC. This team effectively demonstrated the capability to effectively monitor, decontaminate and provide congregate care for evacuees and emergency workers and their equipment. They also demonstrated they were aware of their responsibilities in controlling their personal exposure. The team was proficient in performing their duties and demonstrated good team work.

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

4.3.4 Traffic Control Points

A SCHP Officer successfully demonstrated proficiency in establishing TCPs during OOS evaluations at the Allendale-Fairfield High School. He accurately described the use of personal dosimetry and explained their turn-back values, reporting requirements and key

aspects relating to the ingestion of KI. The officer understood his mission, competently discussed removal of impediments, and was familiar with details that the public might require such as locations of reception centers and alternate evacuation routes. Prior to the demonstration personnel from the County EMA provided a mission and radiological safety briefing to the officer. The briefing and discussion that followed indicated all personnel were well trained in the areas assigned, able to establish the TCP in a timely manner, and fully prepared to assist evacuees from the 10-mile EPZ.

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

4.4 BARNWELL COUNTY, SOUTH CAROLINA

4.4.1 Emergency Operations Center

The EMD successfully demonstrated direction and control of the EOC. His decisions were effective, coordinated, concise and timely; the local jurisdiction's needs were always the top priority. The EMD conducted frequent status briefings and provided additional advice to the EOC Staff. The EOC staff was knowledgeable and performed all actions in a timely and professional manner. The KI briefing was complete and thorough. The PIO diligently followed state and county procedures relating to the preparation and release of information through the ENC to the public. The EMD and EOC Staff successfully demonstrated EOC Management and Emergency Public Information and Warnings.

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

4.4.2 Emergency Worker & Equipment Monitoring and Decontamination

Barnwell Rural Fire District 11 firefighters effectively demonstrated the ability to monitor and decontaminate emergency workers and their equipment. The firefighters performed their duties in a professional manner and used buddy checking methods to assist co-workers in the performance of their duties. They demonstrated good knowledge of techniques for monitoring and decontamination of emergency workers and their associated vehicles and equipment. The entire team applied good personal exposure control and implemented processes that allowed them to assist emergency workers in a safe and timely return to their duties.

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

5. SUMMARY OF AREAS REQUIRING CORRECTIVE ACTION

5.1 2010 ARCA

5.1.1 68-10-3.a.1-A-01 Risk Jurisdiction Burke County TCPs (Resolved)

Condition: The Burke County Radiation Protection Officer (RPO) Assistant did not provide a safety briefing when issuing dosimetry kits to the two Burke County Sheriff's Deputies. When interviewed afterward, the deputies were unclear of the function of the PRD and when and why to ingest KI. The Deputies were also unaware of the location of the emergency worker monitoring and decontamination locations.

Possible Cause: No dosimetry briefing was provided to emergency workers during dosimetry issue at the Burke County EOC.

Reference: NUREG 0654 – II, O
(Training)

Effect: Emergency workers were sent into the EPZ without adequate knowledge to protect themselves from unacceptable exposure levels.

Corrective Action Demonstrated: The RPO conducted a short training session for his assistants. This training reviewed the proper method to issue dosimetry, to include a briefing which summarizes significant safety issues. The RPO used an existing briefing sheet which was in the dosimetry pack, but was not referenced during the dosimetry issue process.

After this training, the RPO Assistant re-demonstrated dosimetry issue to emergency workers, who were then appropriately knowledgeable about dosimetry use, when and why to ingest KI, and where emergency worker monitoring and decontamination support would be available if necessary.

APPENDIX 1

ACRONYMS AND ABBREVIATIONS

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

ARC	American Red Cross
ARCA	Area Requiring Corrective Action
CFR	Code of Federal Regulations
CST	Civil Support Team
DHEC	Department of Health and Environmental Control
DHS	Department of Homeland Security/
DNR	Department of Natural Resources
DSS	Department of Social Services
EAS	Emergency Alert System
EMC	Emergency Management Coordinator
EMD	Emergency Management Director
ENC	Emergency New Center
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPD	Environmental Protection Division
EPZ	Emergency Planning Zone
EQC	Environmental Quality Control
ERC	Emergency Response Coordinator
FEMA	Federal Emergency Management Agency
FEOC	Forward Emergency Operations Center
FMT	Field Monitoring Teams
FR	Federal Register
FRMAC	Federal Radiological Monitoring and Assessment Center
FTC	Field Team Coordinator
GA	State of Georgia
GAR	Governor's Authorized Representative
GEMA	Georgia Emergency Management Agency
GSP	Georgia State Patrol
HP	Health Physicist
KI	Potassium Iodide

MIDAS	Monitoring, Intrusion Detection, Administration System
MOC	Mobile Operations Command
NRC	Nuclear Regulatory Commission
NUREG-0654	NUREG-0654/FEMA-REP-1, Rev. 1, <i>"Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, November 1980"</i>
ORO	Offsite Response Organization
PAD	Protective Action Decision
PAR	Protective Action Recommendation
PIO	Public Information Officer
RAC	Regional Assistance Committee
RACES	Radio Amateur Civil Emergency Services
RASCAL	Radiological Assessment System for Consequence Analysis
REC	Radiological Emergency Coordinator
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
RPO	Radiation Protection Officer
SC	State of South Carolina
SCEMD	South Carolina Emergency Management Division
SCHP	South Carolina Highway Patrol
SEOC	State Emergency Operations Center
SMRAP	Southern Mutual Radiological Assistance Plan
SOC	State Operations Center
SOP	Standard Operating Procedures
TCP	Traffic Control Point
VEGP	Vogtle Electric Generating Plant
WMD	Weapons of Mass Destruction

APPENDIX 2

EXERCISE EVALUATORS

Vogtle Electric Generating Plant 2010 REP Exercise			
Location	Evaluator	Criterion	Capability
Joint Operations			
Emergency Operations Facility	Robert Trojanowski (NRC)	1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.b.1	EOC Management
Joint Information Center	Jim McClanahan (ICF) Obhie Robinson (FEMA) Rosemary Samsel (ICF)	5.b.1 (Media) 5.b.1 (Public) 1.a.1, 1.c.1, 1.d.1, 1.e.1	Emergency Public Information and Warning
EAS Radio Station (LP1)	Kevin Keyes (FEMA)	1.d.1, 1.e.1, 5.a.1	Emergency Public Information and Warning
NWS Columbia	Robert Nash (FEMA)	1.d.1, 1.e.1, 5.a.1	Emergency Public Information and Warning
State of Georgia			
State Operations Center	Odin Spencer (FEMA) Matt Bradley (FEMA) Henry Christiansen (ICF)	1.c.1, 2.b.2, 1.a.1, 2.a.1, 5.b.1 1.d.1, 1.e.1, 5.a.1	EOC Management, Emergency Public Information and Warning
Dose Assessment	Brad McRee (ICF)	1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.1, 2.b.2, 4.a.2	WMD & HAZMAT Decontamination & Response
FEOC	D. Stuenkel (ICF)	1.a.1, 1.d.1, 1.e.1, 2.a.1, 4.a.2	WMD & HAZMAT Decontamination & Response
Field Monitoring Teams	Jill Leatherman (ICF) Mike Henry (ICF)	1.d.1, 1.e.1, 3.a.1, 3.b.1, 4.a.1, 4.a.3	WMD & HAZMAT Decontamination & Response
Waterway Warning	Lorenzo Lewis (FEMA)	1.d.1, 1.e.1, 3.a.1, 3.b.1, 5.a.3	Emergency Public Information & Warning
State of South Carolina			
State EOC	Joseph Harworth (FEMA) John Fill (FEMA) Bill Larrabee (ICF)	1.c.1, 2.b.2, 1.a.1, 2.a.1, 5.b.1 1.d.1, 1.e.1, 5.a.1	EOC Management, Emergency Public Information and Warning
DHEC Dose Assessment	Jim Hickey (ICF)	1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.1, 2.b.2, 4.a.2	WMD & HAZMAT Decontamination & Response
MOC	Bernie Hannah (ICF)	1.a.1, 1.d.1, 1.e.1, 2.a.1, 4.a.2	WMD & HAZMAT Decontamination & Response
Field Monitoring Teams	Lynn (ICF) E. Shollenberger (ICF)	1.d.1, 1.e.1, 3.a.1, 3.b.1, 4.a.1, 4.a.3	WMD & HAZMAT Decontamination & Response
State TCPs	Bill Larrabee (ICF)	1.d.1, 1.e.1, 3.a.1, 3.b.1, 3.d.1, 3.d.2	Emergency Public Safety & Security Response

Risk Jurisdictions			
Burke County, Georgia			
Emergency Operations Center	Michael Dolder (FEMA) Lisa Rink (FEMA) Jim Greer (ICF)	1.c.1, 2.a.1, 2.b.2, 2.c.1 1.d.1, 3.a.1, 3.b.1, 3.c.1, 3.c.2, 1.a.1, 1.e.1, 3.d.1, 3.d.2, 5.a.1, 5.b.1	EOC Management, Emergency Public Information and Warning,
Traffic Control Points	Jim Greer (ICF)	1.d.1, 1.e.1, 3.a.1, 3.b.1, 3.d.1, 3.d.2	Emergency Public Information & Warning
Aiken County, South Carolina			
Emergency Operations Center	JT Ackermann (FEMA) Alex Sera (FEMA) Jim Grove (ICF)	1.c.1, 2.a.1, 2.b.2 5.a.1, 5.b.1 1.a.1, 1.d.1, 1.e.1, 3.a.1, 3.b.1, 3.d.1, 3.d.2,	EOC Management, Emergency Public Information and Warning,
Traffic Control Points	Bill Larrabee (ICF)	1.d.1, 1.e.1, 3.a.1, 3.b.1, 3.d.1, 3.d.2	Emergency Public Safety & Security Response
Reception Center Congregate Care	Joe Harworth (FEMA) JT Ackermann (FEMA) Bart Ray (ICF)	1.e.1, 3.a.1, 6.a.1, 6.c.1	WMD & HAZMAT Decontamination & Response, Mass Care
Emergency Worker Decontamination	Joe Harworth (FEMA) Ron Shaw (FEMA) JT Ackermann (FEMA)	1.e.1, 3.a.1 6.a.1, 6.b.1	WMD & HAZMAT Decontamination & Response
Allendale County, South Carolina			
Emergency Operations Center	Ron Shaw (FEMA) C. Wentzell (ICF)	1.c.1, 2.a.1, 2.b.2, 1.a.1, 1.d.1, 1.e.1, 3.a.1, 3.b.1, 3.d.1, 3.d.2, 5.a.1, 5.b.1	EOC Management, Emergency Public Information and Warning,
Traffic Control Points	Walt Cushman (FEMA)	1.d.1, 1.e.1, 3.a.1, 3.b.1, 3.d.1, 3.d.2	Emergency Public Safety & Security Response
Reception Center Congregate Care	Ron Shaw (FEMA) Bill Larrabee (ICF)	1.e.1, 3.a.1, 6.a.1, 6.c.1	WMD & HAZMAT Decontamination & Response, Mass Care
Emergency Worker Decontamination	Alan Bevan (ICF)	1.e.1, 3.a.1 6.a.1, 6.b.1	WMD & HAZMAT Decontamination & Response
Barnwell County, South Carolina			
Emergency Operations Center	Gerald McLemore (FEMA) Jon Sandberg (FEMA)	1.c.1, 2.a.1, 2.b.2 1.a.1, 1.d.1, 1.e.1, 3.a.1, 3.b.1, 3.d.1, 3.d.2, 5.a.1, 5.a.3, 5.b.1	EOC Management, Emergency Public Information and Warning
Emergency Worker Decontamination	Alan Bevan (ICF)	1.e.1, 3.a.1 6.a.1, 6.b.1	WMD & HAZMAT Decontamination & Response

APPENDIX 3

EXERCISE CRITERIA AND EXTENT-OF-PLAY AGREEMENT

This appendix lists the exercise criteria scheduled for demonstration in the Vogtle Electric Generating Plant (VEGP) exercise on May 19, 2010 and out-of-sequence activities during May 3-6, 2010 and the extent-of-play agreement approved by FEMA Region IV.

A. Exercise Criteria

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

B. Extent-of-Play Agreement

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

STATE OF GEORGIA EXTENT OF PLAY

Other than the exceptions described in this **Extent of Play Agreement**, exercise activities demonstrated for evaluation will be based on the Georgia Radiological Emergency Base Plan, the respective site-specific plan (Annex A), local county plans and appropriate Standard Operating Procedures.

It is requested that any issue or discrepancy arising during exercise play be allowed correction immediately, at all player locations, if it isn't disruptive to exercise play and if it is mutually agreeable to both the controller and evaluator.

1. EMERGENCY OPERATIONS MANAGEMENT

Sub-Element 1.a—Mobilization

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

Extent of Play

Responsible OROs should demonstrate the capability to receive notification of an emergency situation from the licensee, verify the notification, and contact, alert, and mobilize key emergency personnel in a timely manner. Responsible OROs should demonstrate the activation of facilities for immediate use by mobilized personnel when they arrive to begin emergency operations. Activation of facilities should be completed in accordance with the plan and/or procedures. Pre-positioning of emergency personnel is appropriate, in accordance with the extent-of-play agreement, at those facilities located beyond a normal commuting distance from the individual's duty location or residence. Further, pre-positioning of staff for out-of-sequence demonstrations is appropriate in accordance with the extent-of-play agreement.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

- GEMA will exercise command and control from the State Operations Center (SOC) in Atlanta. GEMA staff will be notified using normal call in procedures. Participating agencies not located near GEMA headquarters may pre-position at the GEMA complex; however, they will receive notification through normal procedures. Selected state personnel will pre-position at the Emergency Operations Facility (EOF) in Birmingham, AL; Public Emergency News Center (ENC) in Waynesboro; the South Carolina Emergency Operations Center (SC EOC) in Columbia, SC; and the Burke County Emergency Operations Center (EOC). Field teams will report to and be dispatched from the Burke EOC.
- Burke County will use normal call in procedures to their EOC as the scenario dictates.

Sub-Element 1.b—Facilities

Criterion 1.b.1: Facilities are sufficient to support the emergency response. (NUREG-0654, H.3)

- Not applicable

Sub-Element 1.c—Direction and Control

Criterion 1.c.1: Key personnel with leadership roles for the ORO provide direction and control to that part of the overall response effort for which they are responsible (NUREG-0654, A.1.d; A.2.a, b)

Extent of Play

Leadership personnel should demonstrate the ability to carry out essential functions of the response effort, for example: keeping the staff informed through periodic briefings and/or other means, coordinating with other appropriate OROs, and ensuring completion of requirements and requests.

All activities associated with direction and control must be performed based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless otherwise noted above or indicated in the extent-of-play agreement.

- State direction and control will occur from the SOC in Atlanta. State Public Affairs Staff, including the Public Information Officer, will report to the ENC. GEMA Liaisons will be deployed to locations for coordination purposes. Field team coordination will occur in Waynesboro at the state Forward Emergency Operations Center/Burke County EOC facility.
- County direction and control will occur from the Burke County EOC.

Sub-Element 1.d—Communications Equipment

Criterion 1.d.1: At least two communication systems are available, at least one operates properly, and communication links are established and maintained with appropriate locations. Communications capabilities are managed in support of emergency operations. (NUREG-0654, F.1, 2)

Extent of Play

ORO's will demonstrate that a primary and at least one backup system are fully functional at the beginning of an exercise. If a communications system or systems are not functional, but exercise performance is not affected, no exercise issue will be assessed. Communications equipment and procedures for facilities and field units should be used as needed for the transmission and receipt of exercise messages. All facilities and field teams should have the capability to access at least one communication system that is independent of the commercial telephone system.

Responsible OROs should demonstrate the capability to manage the communication systems and ensure that all message traffic is handled without delays that might disrupt the conduct of emergency operations. OROs should ensure that a coordinated communication link for fixed and mobile medical support facilities exists. The specific communications capabilities of OROs should be commensurate with that specified in the response plan and/or procedures. Exercise scenarios could require the failure of a communications system and the use of an alternate system, as negotiated in the extent-of-play agreement.

All activities associated with the management of communications capabilities must be demonstrated based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless otherwise noted above or in the extent-of-play agreement.

- In agreement.

Sub-Element 1.e—Equipment and Supplies to Support Operation

Criterion 1.e.1: Equipment, maps, displays, dosimetry, potassium iodide (KI), and other supplies are sufficient to support emergency operations. (NUREG-0654, H.7,10; J.10.a, b, e, J.11; K.3.a)

Extent of Play

Equipment within the facility (facilities) should be sufficient and consistent with the role assigned to that facility in the ORO's plans and/or procedures in support of emergency operations. Use of maps and displays is encouraged.

All instruments, should be inspected, inventoried, and operationally checked before each use. Instruments should be calibrated in accordance with the manufacturer's recommendations. A label indicating such calibration should be on each instrument or calibrated frequency can be verified by other means. Additionally, instruments being used to measure activity should have a range of readings sticker affixed to the side of the instrument. The above considerations should be included in 4.a.1 for field team equipment; 4.c.1 for radiological laboratory equipment (does not apply to analytical equipment); reception center and emergency worker facilities' equipment under 6.a.1; and ambulance and medical facilities' equipment under 6.d.1.

Sufficient quantities of appropriate direct-reading and permanent record dosimetry and dosimeter chargers should be available for issuance to all categories of emergency workers that could be deployed from that facility. Appropriate direct-reading dosimetry should allow individual(s) to read the administrative reporting limits and maximum exposure limits contained in the ORO's plans and procedures.

Dosimetry should be inspected for electrical leakage at least annually and replaced, if necessary. This leakage testing will be verified during the exercise, through documentation submitted in the Annual Letter of Certification, and/or through a staff assistance visit. Responsible OROs should demonstrate the capability to maintain inventories of KI sufficient for use by emergency workers, as indicated on rosters; where stipulated by the plan and/or procedures.

Quantities of dosimetry and KI available and storage location(s) will be confirmed by physical inspection at storage location(s) or through documentation of current inventory submitted during the exercise, provided in the Annual Letter of Certification submission, and/or verified during a Staff Assistance Visit. Available supplies of KI should be within the expiration date indicated on KI bottles or blister packs. As an alternative, the ORO may produce a letter from a certified private or State laboratory indicating that the KI supply remains potent, in accordance with U.S. Pharmacopoeia standards.

At locations where traffic and access control personnel are deployed, appropriate equipment (e.g., vehicles, barriers, traffic cones and signs, etc.) should be available or their availability described.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

- All dosimeters and radiation detection instruments are commercially procured. Practice or simulated TLDs will be furnished to the emergency workers and KI will be simulated for State and County emergency workers as necessary. The general public is not provided KI.
- Evaluation of equipment and supplies will be completed during a Staff Assistance Visit (SAV) prior to the exercise.

2. PROTECTIVE ACTION DECISION MAKING

Sub-Element 2.a—Emergency Worker Exposure Control

Criterion 2.a.1: OROs use a decision making process, considering relevant factors and appropriate coordination, to ensure that an exposure control system, including the use of KI, is in place for emergency workers including provisions to authorize radiation exposure in excess of administrative limits or protective action guides. (NUREG-0654, K.4, J.10.e, f)

Extent of Play

ORO's authorized to send emergency workers into the plume exposure pathway EPZ should demonstrate a capability to meet the criterion based on their emergency plans and procedures.

If necessary, the state ORO's should demonstrate the capability to make decisions concerning the authorization of exposure levels in excess of preauthorized levels and to the number of emergency workers receiving radiation dose above pre-authorized levels. As appropriate, ORO's should demonstrate the capability to make decisions on the distribution and administration of KI as a protective measure, based on the ORO's plan and/or procedures or projected thyroid dose compared with the established Protective Action Guides (PAG) for KI administration.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

- In agreement

Sub-Element 2.b—Radiological Assessment and Protective Action Recommendations and Decisions for the Plume Phase of the Emergency

Criterion 2.b.1: Appropriate protective action recommendations are based on available information on plant conditions, field monitoring data, and licensee and ORO dose projections, as well as knowledge of onsite and offsite environmental conditions. (NUREG-0654, I.8, 10 and Supplement 3)

Extent of Play

During the initial stage of the emergency response, following notification of plant conditions that may warrant offsite protective actions, the ORO should demonstrate the capability to use

appropriate means, described in the plan and/or procedures, to develop protective action recommendations (PAR) for decision-makers based on available information and recommendations from the licensee and field monitoring data, if available.

When release and meteorological data are provided by the licensee, the ORO also considers these data. The ORO should demonstrate a reliable capability to independently validate dose projections. The types of calculations to be demonstrated depend on the data available and the need for assessments to support the PARs appropriate to the scenario. In all cases, calculation of projected dose should be demonstrated. Projected doses should be related to quantities and units of the PAG to which they will be compared. PARs should be promptly transmitted to decision-makers in a prearranged format.

Differences greater than a factor of 10 between projected doses by the licensee and the ORO should be discussed with the licensee with respect to the input data and assumptions used, the use of different models, or other possible reasons. Resolution of these differences should be incorporated into the PAR if timely and appropriate. The ORO should demonstrate the capability to use any additional data to refine projected doses and exposure rates and revise the associated PARs.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

- In agreement

Criterion 2.b.2: A decision-making process involving consideration of appropriate factors and necessary coordination is used to make protective action decisions (PAD) for the general public (including the recommendation for the use of KI, if ORO policy). (NUREG-0654, J.9, 10.f, m)

Extent of Play

Offsite Response Organizations (OROs) should have the capability to make both initial and subsequent PADs. They should demonstrate the capability to make initial PADs in a timely manner appropriate to the situation, based on notification from the licensee, assessment of plant status and releases, and PARs from the utility and ORO staff.

The dose assessment personnel may provide additional PARs based on the subsequent dose projections, field monitoring data, or information on plant conditions. The decision makers should demonstrate the capability to change protective actions as appropriate based on these projections.

If the ORO has determined that KI will be used as a protective measure for the general public under offsite plans, then the ORO should demonstrate the capability to make decisions on the distribution and administration of KI as a protective measure for the general public to supplement sheltering and evacuation. This decision should be based on the ORO's plan and/or procedures or projected thyroid dose compared with the established PAG for KI administration. The KI decision making process should involve close coordination with appropriate assessment and decision-making staff.

If more than one ORO is involved in decision-making, OROs should communicate and coordinate PADs with affected OROs. OROs should demonstrate the capability to communicate the contents of decisions to the affected jurisdictions.

All decision-making activities by ORO personnel must be performed based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

- In agreement

Sub-Element 2.c—Protective Action Decisions for Protection of Special Populations

Criterion 2.c.1: Protective action decisions are made, as appropriate, for special population groups. (NUREG-0654, J.9, J.10.d, e)

Extent of Play

Usually, it is appropriate to implement evacuation in areas where doses are projected to exceed the lower end of the range of PAGs, except for situations where there is a high-risk environment where high-risk groups (e.g., the immobile or infirm) are involved. In these cases, examples of factors that should be considered are: weather conditions, shelter availability, availability of transportation assets, and risk of evacuation vs. risk from the avoided dose, and precautionary school evacuations. In situations where an institutionalized population cannot be evacuated, the administration of KI should be considered by the OROs. Applicable OROs should demonstrate the capability to alert and notify all public school systems/districts of emergency conditions that are expected to or may necessitate protective actions for students. Contacts with public school systems/districts must be actual.

In accordance with plans and/or procedures, OROs and/or officials of public school systems/districts should demonstrate the capability to make prompt decisions on protective actions for students. Officials should demonstrate that the decision making process for protective actions considers (that is, either accepts automatically or gives heavy weight to) protective action recommendations made by ORO personnel, the ECL at which these recommendations are received, preplanned strategies for protective actions for that ECL, and the location of students at the time (for example, whether the students are still at home, en route to the school, or at the school).

All decision-making activities associated with protective actions, including consideration of available resources, for special population groups must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

- In agreement

Sub-Element 2.d—Radiological Assessment and decision-Making for the Ingestion Pathway

Criterion 2.d.1: Radiological consequences for the ingestion pathway are assessed and appropriate protective action decisions are made based on the ORO's planning criteria. (NUREG-0654, J.9, J.11)

- Will not demonstrate.

Sub-Element 2.e—Radiological assessment and Decision-Making Concerning Relocation, Re-entry and Return

Criterion 2.e.1: Timely relocation, reentry, and return decisions are made and coordinated as appropriate, based on assessments of the radiological conditions and criteria in the ORO's plan and/or procedures. (NUREG-0654, I.10; J.9; M.1)

- Will not demonstrate.

3. PROTECTIVE ACTION IMPLEMENTATION

Sub-Element 3.a—Implementation of Emergency Worker Exposure Control

Criterion 3.a.1: The OROs issue appropriate dosimetry and procedures, and manage radiological exposure to emergency workers in accordance with the plans and procedures. Emergency workers periodically and at the end of each mission read their dosimeters and record the readings on the appropriate exposure record or chart. (NUREG-0654, K.3.a, b)

Extent of Play

ORO's should demonstrate the capability to provide appropriate direct-reading and permanent record dosimetry, dosimeter chargers, and instructions on the use of dosimetry to emergency workers. For evaluation purposes, appropriate direct-reading dosimetry is defined as dosimetry that allows individual(s) to read the administrative reporting limits (that are pre-established at a level low enough to consider subsequent calculation of Total Effective Dose Equivalent) and maximum exposure limits (for those emergency workers involved in life saving activities) contained in the ORO's plans and procedures. Each emergency worker should have the basic knowledge of radiation exposure limits as specified in the ORO's plan and/or procedures. Procedures to monitor and record dosimeter readings and to manage radiological exposure control should be demonstrated. During a plume phase exercise, emergency workers should demonstrate the procedures to be followed when administrative exposure limits and turn back values are reached.

The emergency worker should report accumulated exposures during the exercise as indicated in the plans and procedures. OROs should demonstrate the actions described in the plan and/or procedures by determining whether to replace the worker, to authorize the worker to incur additional exposures or to take other actions. If scenario events do not require emergency workers to seek authorizations for additional exposure, evaluators should interview at least two emergency workers, to determine their knowledge of whom to contact in the event authorization is needed and at what exposure levels. Emergency workers may use any available resources (e.g., written procedures and/or coworkers) in providing responses.

Although it is desirable for all emergency workers to each have a direct-reading dosimeter, there may be situations where team members will be in close proximity to each other during the entire mission and adequate control of exposure can be affected for all members of the team by one dosimeter worn by the team leader. Emergency workers who are assigned to low exposure rate areas, e.g., at reception centers, counting laboratories, emergency operations centers, and communications centers, may have individual direct-reading dosimeters or they may be

monitored by dosimeters strategically placed in the work area. It should be noted that, even in these situations, each team member must still have their own permanent record dosimetry.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

- In agreement

Sub-Element 3.b—Implementation of KI Decision

Criterion 3.b.1: KI and appropriate instructions are available should a decision to recommend use of KI be made. (NUREG-0654, J.10.e)

Extent-of-play

Offsite Response Organizations (OROs) should demonstrate the capability to make KI available to emergency workers, institutionalized individuals, and, where provided for in the ORO plan and/or procedures, to members of the general public. OROs should demonstrate the capability to accomplish distribution of KI consistent with decisions made. Organizations should have the capability to develop and maintain lists of emergency workers and institutionalized individuals who have ingested KI, including documentation of the date(s) and time(s) they were instructed to ingest KI. The ingestion of KI recommended by the designated ORO health official is voluntary. For evaluation purposes, the actual ingestion of KI is not necessary. OROs should demonstrate the capability to formulate and disseminate appropriate instructions on the use of KI for those advised to take it. If a recommendation is made for the general public to take KI, appropriate information should be provided to the public by the means of notification specified in the ORO's plan and/or procedures.

Emergency workers should demonstrate the basic knowledge of procedures for the use of KI whether or not the scenario drives the use of KI. This can be accomplished by an interview with the evaluator.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

- In agreement

Sub-Element 3.c—Implementation of Protective Actions for Special Populations:

Criterion 3.c.1: Protective action decisions are implemented for special populations other than schools within areas subject to protective actions. (NUREG-0654, J.10.c, d, g)

- Will not be demonstrated. Last demonstrated in 2005.

Criterion 3.c.2: OROs/School officials implement protective actions for schools. (NUREG-0654, J.10.c, d, g)

Extent-of-play

Public school systems/districts shall demonstrate the ability to implement protective action decisions for students. The demonstration shall be made as follows: At least one school in each affected school system or district, as appropriate, needs to demonstrate the implementation of protective actions. The implementation of canceling the school day, dismissing early, or sheltering should be simulated by describing to evaluators the procedures that would be followed. If evacuation is the implemented protective action, all activities to coordinate and complete the evacuation of students to reception centers, congregate care centers, or host schools may actually be demonstrated or accomplished through an interview process. If accomplished through an interview process, appropriate school personnel including decision-making officials (e.g., superintendent/principal, transportation director/bus dispatcher), and at least one bus driver (and the bus driver's escort, if applicable) should be available to demonstrate knowledge of their role(s) in the evacuation of school children. Communications capabilities between school officials and the buses, if required by the plan and/or procedures, should be verified.

Officials of the school system(s) should demonstrate the capability to develop and provide timely information to OROs for use in messages to parents, the general public, and the media on the status of protective actions for schools.

The provisions of this criterion also apply to any private schools, private kindergartens and day care centers that participate in REP exercises pursuant to the ORO's plans and procedures as negotiated in the extent-of-play agreement.

All activities must be based on the ORO's plans and procedures and completed, as they would be in an actual

- The only school within the 10-mile EPZ is The Lord's House of Praise Transition Center. Notification of the school will be simulated. If evacuation is warranted based on the scenario, this criterion will be demonstrated by interview of the County EMA director and school system representative.

Sub-Element 3.d—Implementation of Traffic and Access Control

Criterion 3.d.1: Appropriate traffic and access control is established. Accurate instructions are provided to traffic and access control personnel. (NUREG-0654, J.10.g, j)

Extent of Play

ORO should demonstrate the capability to select, establish, and staff appropriate traffic and access control points, consistent with protective action decisions (for example, evacuating, sheltering, and relocation), in a timely manner. OROs should demonstrate the capability to provide instructions to traffic and access control staff on actions to take when modifications in protective action strategies necessitate changes in evacuation patterns or in the area(s) where access is controlled.

Traffic and access control staff should demonstrate accurate knowledge of their roles and responsibilities. This capability may be demonstrated by actual deployment or by interview, in accordance with the extent-of-play agreement.

In instances where OROs lack authority necessary to control access by certain types of traffic (rail, water, and air traffic), they should demonstrate the capability to contact the State or Federal agencies with authority to control access.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

- This criterion will be evaluated by interview of law enforcement officers in the Burke County EOC. Actual demonstrations will not be performed.

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

Extent of Play

ORO's should demonstrate the capability, as required by the scenario, to identify and take appropriate actions concerning impediments to evacuation. Actual dispatch of resources to deal with impediments, such as wreckers, need not be demonstrated; however, all contacts, actual or simulated, should be logged.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

- Should an impediment occur dependent on the scenario, the Burke County EOC law enforcement representative or his designee will discuss the procedures. Actual demonstrations will not be performed.

Sub-Element 3.e—Implementation of Ingestion Pathway Decisions

Criterion 3.e.1: The ORO demonstrates the availability and appropriate use of adequate information regarding water, food supplies, milk, and agricultural production within the ingestion exposure pathway emergency planning zone for implementation of protective actions. NUREG-0654, J.9, 11)

- Will not be demonstrated.

Criterion 3.e.2: Appropriate measures, strategies, and pre-printed instructional material are developed for implementing protective action decisions for contaminated water, food products, milk, and agricultural production. (NUREG-0654, J.9, 11)

- Will not be demonstrated.

Sub-Element 3.f—Implementation of Relocation, Re-entry and Return Decisions

Criterion 3.f.1: Decisions regarding controlled Reentry of emergency workers and relocation and return of the public are coordinated with appropriate organizations and implemented. (NUREG-0654, M.1, 3)

- Will not be demonstrated.

4. FIELD MEASUREMENT AND ANALYSIS

Sub-Element 4.a—Plume Phase Field Measurements and Analysis

Criterion 4.a.1: The field teams are equipped to perform field measurements of direct radiation exposure (cloud and ground shine) and to sample airborne radioiodine and particulates. (NUREG-0654, H.10; I.7, 8, 9)

Extent of Play

Field teams should be equipped with all instrumentation and supplies necessary to accomplish their mission. This should include instruments capable of measuring gamma exposure rates and detecting the presence of beta radiation. These instruments should be capable of measuring a range of activity and exposure, including radiological protection/exposure control of team members and detection of activity on the air sample collection media, consistent with the intended use of the instrument and the ORO's plans and procedures. An appropriate radioactive check source should be used to verify proper operational response for each low range radiation measurement instrument (less than 1 R/hr) and for high range instruments when available. If a source is not available for a high range instrument, a procedure should exist to operationally test the instrument before entering an area where only a high range instrument can make useful readings.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

- Coordination of field teams will occur from the FEOC/Burke EOC. Two field teams will be dispatched into the field. Field teams will be comprised of one Georgia EPD Environmental Radiation Program staff member, one Georgia National Guard 4th Civil Support Team (4th CST) member, and one county driver/guide.

Criterion 4.a.2: Field teams are managed to obtain sufficient information to help characterize the release and to control radiation exposure. (NUREG-0654, H.12; I.8, 11; J.10.a)

Extent of Play

Responsible Offsite Response Organizations (OROs) should demonstrate the capability to brief teams on predicted plume location and direction, travel speed, and exposure control procedures before deployment.

Field measurements are needed to help characterize the release and to support the adequacy of implemented protective actions or to be a factor in modifying protective actions. Teams should be directed to take measurements in such locations, at such times to provide information sufficient to characterize the plume and impacts.

If the responsibility to obtain peak measurements in the plume has been accepted by licensee field monitoring teams, with concurrence from OROs, there is no requirement for these measurements to be repeated by State and local monitoring teams. If the licensee teams do not obtain peak measurements in the plume, it is the ORO's decision as to whether peak measurements are necessary to sufficiently characterize the plume. The sharing and coordination of plume measurement information among all field teams (licensee, Federal, and ORO) is essential. Coordination concerning transfer of samples, including a chain of custody form, to a radiological laboratory should be demonstrated.

OROs should use Federal resources as identified in the Federal Radiological Emergency Response Plan (FRERP), and other resources (for example, compacts, utility, etc.), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

- In agreement. Field team coordination will occur from the FEOC/Burke EOC.

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

Extent of Play

Field teams should demonstrate the capability to report measurements and field data pertaining to the measurement of airborne radioiodine and particulates and ambient radiation to the field team coordinator, dose assessment, or other appropriate authority. If samples have radioactivity significantly above background, the appropriate authority should consider the need for expedited laboratory analyses of these samples.

OROs should share data in a timely manner with all appropriate OROs. All methodology, including contamination control, instrumentation, preparation of samples, and a chain of custody form for transfer to a laboratory, will be in accordance with the ORO's plan and/or procedures.

OROs should use Federal resources as identified in the FRERP, and other resources (for example, compacts, utility, etc.), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

- In agreement.

Sub-Element 4.b—Post Plume Phase Field Measurements and Sampling

Criterion 4.b.1: The field teams demonstrate the capability to make appropriate measurements and to collect appropriate samples (e.g., food crops, milk, water, vegetation, and soil) to support adequate assessments and protective action decision making. (NUREG-0654, I.8; J.11)

- Will not be demonstrated.

Sub-Element 4.c—Laboratory Operations

Criterion 4.c.1: The laboratory is capable of performing required radiological analyses to support protective action decisions. (NUREG-0654, C.3; J.11)

- Will not be demonstrated.

5. EMERGENCY NOTIFICATION AND PUBLIC INFORMATION

Sub-Element 5.a—Activation of the Prompt Alert and Notification System

Criterion 5.a.1: Activities associated with primary alerting and notification of the public are completed in a timely manner following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. The initial instructional message to the public must include as a minimum the elements required by current FEMA REP guidance. (10 CFR Part 50, Appendix E.IV.D and NUREG-0654, E.5, 6, 7)

Extent of Play

Responsible Offsite Response Organizations (OROs) should demonstrate the capability to sequentially provide an alert signal followed by an initial instructional message to populated areas (permanent resident and transient) throughout the 10-mile plume pathway EPZ. Following the decision to activate the alert and notification system, in accordance with the ORO's plan and/or procedures, completion of system activation should be accomplished in a timely manner (will not be subject to specific time requirements) for primary alerting/notification. The initial message should include the elements required by current FEMA REP guidance.

Offsite Response Organizations (OROs) with route alerting as the primary method of alerting and notifying the public should demonstrate the capability to accomplish the primary route alerting, following the decision to activate the alert and notification system, in a timely manner (will not be subject to specific time requirements) in accordance with the ORO's plan and/or procedures. At least one route needs to be demonstrated and evaluated. The selected route(s) should vary from exercise to exercise. However, the most difficult route should be demonstrated at least once every six years. All alert and notification activities along the route should be simulated (that is, the message that would actually be used is read for the evaluator, but not actually broadcast) as agreed upon in the extent-of-play. Actual testing of the mobile public address system will be conducted at some agreed-upon location. The initial message should include the elements required by current FEMA REP guidance. For exercise purposes, timely is defined as "the responsible ORO personnel/representatives demonstrate actions to disseminate the appropriate information/instructions with a sense of urgency and without undue delay." If message dissemination is to be identified as not having been accomplished in a timely manner,

the evaluator(s) will document a specific delay or cause as to why a message was not considered timely.

Procedures to broadcast the message should be fully demonstrated as they would in an actual emergency up to the point of transmission. Broadcast of the message(s) or test messages *is not* required. The alert signal activation may be simulated. However, the procedures should be demonstrated up to the point of actual activation.

The capability of the primary notification system to broadcast an instructional message on a 24-hour basis should be verified during an interview with appropriate personnel from the primary notification system.

All activities for this criterion must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, except as noted above or otherwise indicated in the extent-of-play agreement.

- Prompt Notification System activities will be demonstrated up to the point of activation during the exercise. Actual siren and tone alert radio activation will occur on Thursday, May 20, 2010 at 7:00 pm. GEMA and Burke County coordinate PNS activation with South Carolina.

Criterion 5.a.2:

- Will not be demonstrated.

Criterion 5.a.3: Activities associated with FEMA approved exception areas (where applicable) are completed within 45 minutes following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. Backup alert and notification of the public is completed within 45 minutes following the detection by the ORO of a failure of the primary alert and notification system. (NUREG-0654, E. 6, Appendix 3.B.2.c)

Extent of Play

Offsite Response Organizations (OROs) with FEMA-approved exception areas (identified in the approved Alert and Notification System Design Report) 5–10 miles from the nuclear power plant should demonstrate the capability to accomplish primary alerting and notification of the exception area(s) within 45 minutes following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. The 45-minute clock will begin when the OROs make the decision to activate the alert and notification system for the first time for a specific emergency situation. The initial message should, at a minimum, include: a statement that an emergency exists at the plant and where to obtain additional information. For exception area alerting, at least one route needs to be demonstrated and evaluated. The selected route(s) should vary from exercise to exercise. However, the most difficult route should be demonstrated at least once every six years. All alert and notification activities along the route should be simulated (that is, the message that would actually be used is read for the evaluator, but not actually broadcast) as agreed upon in the extent-of-play. Actual testing of the mobile public address system will be conducted at some agreed-upon location.

Backup alert and notification of the public should be completed within 45 minutes following the detection by the ORO of a failure of the primary alert and notification system. Backup route alerting only needs to be demonstrated and evaluated, in accordance with the ORO's plan and/or procedures and the extent-of-play agreement, if the exercise scenario calls for failure of any portion of the primary system(s), or if any portion of the primary system(s) actually fails to function. If demonstrated, only one route needs to be selected and demonstrated. All alert and notification activities along the route should be simulated (that is, the message that would actually be used is read for the evaluator, but not actually broadcast) as agreed upon in the extent-of-play. Actual testing of the mobile public address system will be conducted at some agreed-upon location.

All activities for this criterion must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, except as noted above or otherwise indicated in the extent-of-play agreement.

- This Evaluation Area will be scenario dependent demonstrated in accordance with the plan by a discussion between the evaluator, the Burke County EMA Director, and if necessary local law enforcement officers (See 3.d.1). No actual demonstrations with the exception of river clearance will occur. River clearance activities will be demonstrated by Burke County personnel. Burke County will launch a boat from Stoney Bluff Landing and clear the river to Plant Vogtle. The Georgia Department of Natural Resources Law Enforcement (DNR LE) clears the river from Plant Vogtle to Shell Bluff Landing. DNR LE's exercise participation is subject to personnel availability.

Sub-Element 5.b—Emergency Information and Instructions for the Public and the Media
Criterion 5.b.1: OROs provide accurate emergency information and instructions to the public and the news media in a timely manner. (NUREG-0654, E. 5, 7; G.3.a, G.4.c)

Extent of Play

Subsequent emergency information and instructions should be provided to the public and the media in a timely manner (will not be subject to specific time requirements). For exercise purposes, timely are defined as "the responsible ORO personnel/representatives demonstrate actions to disseminate the appropriate information/instructions with a sense of urgency and without undue delay." If message dissemination is to be identified as not having been accomplished in a timely manner, the evaluator(s) will document a specific delay or cause as to why a message was not considered timely. The ORO should ensure that emergency information and instructions are consistent with protective action decisions made by appropriate officials. The emergency information should contain all necessary and applicable instructions (for example, evacuation instructions, evacuation routes, reception center locations, what to take when evacuating, information concerning pets, shelter-in-place instructions, information concerning protective actions for schools and special populations, public inquiry telephone number, etc.) to assist the public in carrying out protective action decisions provided to them. The ORO should also be prepared to disclose and explain the Emergency Classification Level (ECL) of the incident. At a minimum, this information must be included in media briefings and/or media releases. OROs should demonstrate the capability to use language that is clear and understandable to the public within both the plume and ingestion pathway EPZs. This includes demonstration of the capability to use familiar landmarks and boundaries to describe protective action areas.

The emergency information should be all-inclusive by including previously identified protective action areas that are still valid, as well as new areas. The OROs should demonstrate the capability to ensure that emergency information that is no longer valid is rescinded and not repeated by broadcast media. In addition, the OROs should demonstrate the capability to ensure that current emergency information is repeated at pre-established intervals in accordance with the plan and/or procedures.

ORO's should demonstrate the capability to develop emergency information in a non-English language when required by the plan and/or procedures.

If ingestion pathway measures are exercised, OROs should demonstrate that a system exists for rapid dissemination of ingestion pathway information to pre-determined individuals and businesses in accordance with the ORO's plan and/or procedures.

ORO's should demonstrate the capability to provide timely, accurate, concise, and coordinated information to the news media for subsequent dissemination to the public. This would include demonstration of the capability to conduct timely and pertinent media briefings and distribute media releases as the situation warrants. The OROs should demonstrate the capability to respond appropriately to inquiries from the news media. All information presented in media briefings and media releases should be consistent with protective action decisions and other emergency information provided to the public. Copies of pertinent emergency information (for example, Emergency Alert System [EAS] messages and media releases) and media information kits should be available for dissemination to the media. OROs should demonstrate that an effective system is in place for dealing with calls to the public inquiry hotline. Hotline staff should demonstrate the capability to provide or obtain accurate information for callers or refer them to an appropriate information source. Information from the hotline staff, including information that corrects false or inaccurate information when trends are noted, should be included, as appropriate, in emergency information provided to the public, media briefings, and/or media releases. All activities for this criterion must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

- In agreement.

6.0 SUPPORT OPERATION/FACILITIES

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

Criterion 6.a.1: The reception center/emergency worker facility has appropriate space, adequate resources, and trained personnel to provide monitoring, decontamination, and registration of evacuees and/or emergency workers. (NUREG-0654, J.10.h; J.12; K.5.a)

Extent of Play

Radiological monitoring, decontamination, and registration facilities for evacuees/emergency workers should be set up and demonstrated as they would be in an actual emergency or as indicated in the extent-of-play agreement. This would include adequate space for evacuees' vehicles. Expected demonstration should include 1/3 of the monitoring teams/portal monitors required to monitor 20% of the population allocated to the facility within 12 hours. Before using

monitoring instrument(s), the monitor(s) should demonstrate the process of checking the instrument(s) for proper operation.

Staff responsible for the radiological monitoring of evacuees should demonstrate the capability to attain and sustain a monitoring productivity rate per hour needed to monitor the 20% emergency planning zone (EPZ) population planning base within about 12 hours. This monitoring productivity rate per hour is the number of evacuees that can be monitored per hour by the total complement of monitors using an appropriate monitoring procedure. A minimum of six individuals per monitoring station should be monitored, using equipment and procedures specified in the plan and/or procedures, to allow demonstration of monitoring, decontamination, and registration capabilities. The monitoring sequences for the first six simulated evacuees per monitoring team will be timed by the evaluators in order to determine whether the twelve-hour requirement can be met. Monitoring of emergency workers does not have to meet the twelve-hour requirement. However, appropriate monitoring procedures should be demonstrated for a minimum of two emergency workers. Decontamination of evacuees/emergency workers may be simulated and conducted by interview. The availability of provisions for separately showering should be demonstrated or explained. The staff should demonstrate provisions for limiting the spread of contamination. Provisions could include floor coverings, signs and appropriate means (for example, partitions, roped-off areas) to separate clean from potentially contaminated areas.

Provisions should also exist to separate contaminated and uncontaminated individuals, provide changes of clothing for individuals whose clothing is contaminated, and store contaminated clothing and personal belongings to prevent further contamination of evacuees or facilities. In addition, for any individual found to be contaminated, procedures should be discussed concerning the handling of potential contamination of vehicles and personal belongings.

Monitoring personnel should explain the use of action levels for determining the need for decontamination. They should also explain the procedures for referring evacuees who cannot be adequately decontaminated for assessment and follow up in accordance with the ORO's plans and procedures. Contamination of the individual will be determined by controller inject and not simulated with any low-level radiation source.

The capability to register individuals upon completion of the monitoring and decontamination activities should be demonstrated. The registration activities demonstrated should include the establishment of a registration record for each individual, consisting of the individual's name, address, results of monitoring, and time of decontamination, if any, or as otherwise designated in the plan. Audio recorders, camcorders, or written records are all acceptable means for registration. All activities associated with this criterion must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless otherwise indicated in the extent-of-play agreement.

- Will not be demonstrated. Last demonstrated June 26, 2008.

Sub-Element 6.b—Monitoring and Decontamination of Emergency Worker Equipment:
Criterion 6.b.1: The facility/ORO has adequate procedures and resources for the accomplishment of monitoring and decontamination of emergency worker equipment, including vehicles. (NUREG-0654, K.5.b)

Extent of Play

The monitoring staff should demonstrate the capability to monitor equipment, including vehicles, for contamination in accordance with the Offsite Response Organization's (ORO's) plans and procedures. Specific attention should be given to equipment, including vehicles, that was in contact with individuals found to be contaminated. The monitoring staff should demonstrate the capability to make decisions on the need for decontamination of equipment, including vehicles, based on guidance levels and procedures stated in the plan and/or procedures.

The area to be used for monitoring and decontamination should be set up as it would be in an actual emergency, with all route markings, instrumentation, record keeping and contamination control measures in place. Monitoring procedures should be demonstrated for a minimum of one vehicle. It is generally not necessary to monitor the entire surface of vehicles. However, the capability to monitor areas such as radiator grills, bumpers, wheel wells, tires, and door handles should be demonstrated. Interior surfaces of vehicles that were in contact with individuals found to be contaminated should also be checked. Decontamination capabilities, and provisions for vehicles and equipment that cannot be decontaminated, may be simulated and conducted by interview.

All activities associated with this criterion must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

- Will not be demonstrated.

Sub-Element 6.c—Temporary Care of Evacuees

Criterion 6.c.1: Managers of congregate care facilities demonstrate that the centers have resources to provide services and accommodations consistent with American Red Cross planning guidelines. (Found in MASS CARE—Preparedness Operations, ARC 3031). Managers demonstrate the procedures to assure that evacuees have been monitored for contamination and have been decontaminated as appropriate prior to entering congregate care facilities. (NUREG-0654, J.10.h, J.12)

Extent of Play

Under this criterion, demonstration of congregate care centers may be conducted out of sequence with the exercise scenario. The evaluator should conduct a walk-through of the center to determine, through observation and inquiries, that the services and accommodations are consistent with ARC 3031. In this simulation, it is not necessary to set up operations as they would be in an actual emergency. Alternatively, capabilities may be demonstrated by setting up stations for various services and providing those services to simulated evacuees. Given the substantial differences between demonstration and simulation of this objective, exercise demonstration expectations should be clearly specified in extent-of-play agreements.

Congregate care staff should also demonstrate the capability to ensure that evacuees have been monitored for contamination, have been decontaminated as appropriate, and have been registered before entering the facility. This capability may be determined through an interview process. If operations at the center are demonstrated, material that would be difficult or expensive to transport (e.g., cots, blankets, sundries, and large-scale food supplies) need not be physically available at the facility (facilities). However, availability of such items should be verified by providing the evaluator a list of sources with locations and estimates of quantities. All activities associated with this criterion must be based on the ORO's plans and procedures and completed

as they would be in an actual emergency, unless noted above or otherwise indicated in the extent-of-play agreement.

- Will not be demonstrated.

Sub-Element 6.d—Transportation and Treatment of Contaminated Injured Individuals

Criterion 6.d.1: The facility/ORO has the appropriate space, adequate resources, and trained personnel to provide transport, monitoring, decontamination, and medical services to contaminated injured individuals. (NUREG-0654, F.2; H.10; K.5.a, b; L.1, 4)

- Will not be demonstrated.

**STATE OF SOUTH CAROLINA
EXTENT OF PLAY**

1. Emergency Operations Management.

Sub-element 1.a, Mobilization

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

All participating state and local government personnel will be prepared to respond in accordance with their individual alert, notification, mobilization, and EOC activation procedures at 0800 on May 19, 2010. The alert, notification and mobilization process will be initiated per the exercise scenario. EOC activation will begin after the alerted staff arrives at the EOC. Alert recall rosters will be provided to FEMA evaluators.

Sub-element 1.b, Facilities

Criterion 1.b.1: Facilities are sufficient to support the emergency response. (NUREG - 0654, H).

State and county emergency operations centers have been previously evaluated for baseline capability.

Sub-element 1.c, Direction and Control

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

Direction and Control will be at the State Emergency Operations Center (SEOC). County Direction and Control will take place at the Aiken, Allendale and Barnwell County Emergency Operations Centers (EOC). Direction and Control of Radiological Field operations will take place at location yet to be determined. State Emergency Response Team (SERT) participants include the Emergency Management Division (EMD); ESF 5, Information and planning; ESF 6, Mass Care (Department of Social Services); ESF 8, Health and Medical Services (Department of Health & Environmental Control); ESF 10, Hazardous Materials, (Department of Health and Environmental Control); ESF 13, Department of Natural Resources; and ESF 16, Emergency Traffic Management, (Department of Public Safety). A simulation cell will represent the Office of the Governor, Office of the Adjutant General, and non-playing South Carolina state agencies, FEMA and Georgia. All simulated telephone calls will be made by calling the simulation cell.

Sub-element 1.d, Communications

Criterion 1.d.1: At least two communications systems are available, at least one operates properly, and communication links are established and maintained with appropriate

locations. Communications capabilities are managed in support of emergency operations. (NUREG-0654, F.1., 2.)

The Emergency Notification Network (ENN) is the primary means of communication to notify off-site response agencies. Backups to the ENN include commercial telephone lines, Southern LINC phone system, 800 MHz radio, satellite phones and the Local Government Radio (LGR).

Sub-element 1.e, Equipment and Supplies to Support Operations

Criterion 1.e.1: Equipment, maps, displays, dosimetry, potassium iodide (KI), and other supplies are sufficient to support emergency operations. (NUREG-0654, H., J.10.a.b.e.f.j.k., 11, K.3.a.)

Potassium Iodide for emergency workers will be demonstrated during OOS exercises at the counties. State and County EOCs will discuss this criterion during the May 19th exercise. KI will be simulated by candy or other means.

Quantities of KI for Emergency Workers, institutionalized individuals, and the general public will be confirmed at the SEOC by DHEC ESF-8 with documentation of the current inventory.

All state/county radiation detection equipment will be inspected, inventoried, and operationally checked during the OOS exercises and SAVs. The SAVs will be conducted on the following dates/times:

Barnwell Co:	May 3, 2010, 10:30 am
Aiken Co:	May 3, 2010, 1:30 pm
Allendale Co:	May 4, 2010, 1:00 pm

TCPs: Law enforcement personnel will be interviewed concerning proper procedures for the TCPs. The availability of all equipment for this activity (vehicles, barriers, traffic cones and signs, etc.) will be evaluated during the OOS exercises.

2. Protective Action Decision Making.

Sub-element 2.a., Emergency Worker Exposure Control

Criterion 2.a.1: OROs use a decision-making process, considering relevant factors and appropriate coordination to ensure that an exposure control system, including the use of KI, is in place for emergency workers. This includes provisions to authorize radiation exposure in excess of administrative limits or protective action guides. (NUREG-0654, K.4.)

Dose limits for emergency workers are pre-determined. In accordance with state and local procedures, emergency workers may voluntarily exceed dose limits only after obtaining approval from state ESF 8 and 10, and being briefed on the effects of radiation and possible consequences of excessive exposure by their supervisor. The counties will

discuss the processes with evaluators during out of sequence activities. The State will discuss the processes with evaluators during the May 19th exercise.

Sub-element 2.b. Radiological Assessment and Protective Action Recommendations and Decisions for the Plume Phase of the Emergency.

Criterion 2.b.1: Appropriate protective action recommendations are based on available information on plant conditions, field monitoring data, and licensee and ORO dose projections, as well as knowledge of on-site and off-site environmental conditions. (NUREG-0654, I.8., 10., 11. and Supplement 3.)

Protective action recommendations by DHEC ESF-10 will be based on an evaluation of information received from the licensee, independent dose assessments and simulated field monitoring data input. Dose assessment will take place in the State Emergency Operation Center (SEOC).

Criterion 2.b.2: A decision-making process involving consideration of appropriate factors and necessary coordination is used to make protective action decisions (PADs) for the general public (including the recommendation for the use of KI, if ORO policy). (NUREG-0654, J.9., 10.M.)

The Governor or his designee will demonstrate the ability to make appropriate protective action decisions (PADs) based on recommendations from DHEC. PADs that require sheltering or evacuation of residents or transients in the 10-mile EPZ will be coordinated with the chief county elected official or designee.

3. Protective Action Implementation.

Sub-element 3.a, Implementation of Emergency Worker Exposure Control

Criterion 3.a.1: The OROs issue appropriate dosimetry and procedures, and manage radiological exposure to emergency workers in accordance with the plans and procedures. Emergency workers periodically and at the end of each mission read their dosimeters and record the readings on the appropriate record or chart. (NUREG-0654, K.3)

Emergency Workers or emergency worker teams, based on their assignment will use Self Reading Dosimeters (SRD), or electronic dosimeters and simulated Thermal Luminescent Dosimeters (TLD) to monitor and control their radiation exposure. Emergency workers in low exposure rate areas will use TLDs and may use SRDs or place them in centralized areas. Evaluators need to be present prior to the beginning of activities, so they can observe the briefing and KI distribution process. Emergency workers will be interviewed to determine their knowledge of radiation exposure limits.

Sub-element 3.b, Implementation of KI Decision

Criterion 3.b.1: KI and appropriate instructions are available should a decision to recommend use of KI be made. Appropriate record keeping of the administration of KI

for emergency workers and institutionalized individuals (not general public) is maintained. (NUREG-0654, E.7., J., 10.e.,f.)

KI is distributed to Emergency Workers prior to being dispatched. Emergency Workers DO NOT ingest KI until ordered to do so by the SCDHEC Commissioner or designee. The Aiken, Allendale and Barnwell County Health Department representative will discuss record keeping for KI.

The procedure for post event distribution of KI to the public will be discussed at the SEOC and county shelters (Aiken and Allendale).

Sub-element 3.D, Implementation of Traffic and Access Control

Criterion 3.d.1: Appropriate traffic and access control is established. Accurate instructions are provided to traffic and access control personnel. (NUREG-0654, J.10.g., j., k.)

Traffic and Access Control Points (TACP) are pre-determined.

For Aiken County the South Carolina Highway Patrol and Aiken County Sheriff's deputies will report to the Aiken County EOC to receive a safety briefing. After the safety briefing the law enforcement officers will relocate to their respective TACPs to setup and demonstrate the operation of the TACP. Appropriate equipment will be on-hand and described by the law enforcement officers.

Aiken County TACPs to be evaluated are:

S-1 (SC 5 and Brown Road)

AK-1 (SC 125 and McElmurry Farm Road)

These TACPs will be evaluated on location on May 4th, 2010, 0900 hrs

For Allendale County the South Carolina Highway Patrol and Allendale County Sheriff's deputies will report to Allendale-Fairfax High School to setup and demonstrate the operation of the TACP. Appropriate equipment will be on-hand and described by the law enforcement officers.

Allendale County:

S-4 (SC 125 and Furse Mill Road)

AL-1 (SC 125 and SC 3) (un-manned barricaded location)

These TACPs will be evaluated at Allendale-Fairfax High School on May 4th, 2010, 1900 hrs.

River clearing and closing operations is a coordinated effort between the Georgia and South Carolina Departments of Natural Resources (DNR) and the U. S. Coast Guard. South Carolina DNR will demonstrate coordination of the river operations during the May 19, 2010 exercise from the SEOC, but will not perform operations at or on the Savannah River.

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

Actions to identify and remove impediments to evacuation will be discussed with the appropriate law enforcement officers at the Aiken and Allendale County EOCs.

4. Field Measurement and Analysis

Sub-element 4.a – Plume Phase Field Measurements and Analyses

Criterion 4.a.1: The field team is equipped to perform field measurements of direct radiation exposure (field and ground shine) and to sample airborne radioiodine and particulates. (NUREG-0654, H.10, 1.7, 8,9)

Two field teams and the DHEC Mobile Operations Center (MOC) will be deployed to a forward location near the South Carolina portion of the VEGP EPZ (to be determined). The MOC and staff will be pre-positioned. DHEC field team members will deploy from the MOC. The MOC will establish operations to demonstrate control of field operations within the 10-mile EPZ. The MOC will be available for evaluation and pre-deployment activities one-hour prior to start of exercise to facilitate initiation of field activities in a timely manner at the start of the exercise. PPE will be simulated.

The Mobile radiological laboratory and the exclusion zone will be established at the MOC for training purposes only – no evaluation of services.

Silver Zeolite filters will be simulated with charcoal “marked” filters.

Criterion 4.a.2: The Field team is managed to obtain sufficient information to help characterize the release and to control radiation exposure. (NUREG-0654, 1.8, 11, J.10.a)

Direction and control of the DHEC field teams will take place at the DHEC MOC located at the forward location (to be determined).

Criterion 4.a.3: Ambient radiation measurements are made and recorded at appropriate locations, and radioiodine and particulate samples are collected. The Team moves to an appropriate low background location to determine whether any significant (as specified

by the plan and/or procedures) amount of radioactivity has been collected on the sampling media. (NUREG-0654, 1.8, 9, 11)

For all air samples collected, the chain of custody will be discussed; however, the samples will not be transported to the DHEC headquarters located at 2600 Bull Street, Columbia, SC.

Note: For the Field Measurement and Analysis evaluation area element 4(a), FEMA Evaluators will need to be present at the MOC one-hour before deployment of DHEC field teams for appropriate evaluation purposes.

5. Emergency Notification and Public Information

Sub-element 5.a, Activation of the Prompt Alert and Notification System

Criterion 5.a.1: Activities associated with primary alerting and notification of the public are completed in a timely manner following the initial decision by authorized off-site emergency officials to notify the public of an emergency situation. The initial instructional message to the public must include as a minimum the elements required by current FEMA REP guidance. (10 CFR Part 50, Appendix E & NUREG-0654, E.1., 4, 5, 6, 7.)

The State will coordinate Protective Action Decisions (PAD) with the impacted South Carolina county elected officials or designees and GEMA. South Carolina will coordinate with the impacted SC counties and GEMA during the simulated activation of the VEGP siren system in Barnwell County. An EAS message and follow-on news release will be prepared, but will not be transmitted to the LP-1 station. At General Emergency, a simulated activation of the VEGP siren system in Barnwell County will occur and a simulated EAS message and follow-on news release will be prepared, but will not be transmitted to the LP-1 station. Copies of the EAS messages and news releases will be provided to the FEMA evaluator at the SEOC. The alert and notification system (sirens) will be fully activated out of sequence on May 20, 2010 by VEGP.

Criterion 5.a.3: Activities associated with FEMA approved exception areas (where applicable) are completed within 45 minutes following the initial decision by authorized off-site emergency officials to notify the public of an emergency situation. Backup alert and notification of the public is completed within 45 minutes following the detection by the ORO of a failure of the primary alert and notification system. (NUREG-0654, E.6., Appendix 3.B.2.c)

In the event of siren failure, Barnwell and Aiken Counties will describe the back-up alerting system.

Sub-element 5.b, Emergency Information and Instructions for the Public and the Media

Criterion 5.b.1: OROs provide accurate emergency information and instructions to the public and the news media in a timely manner. (NUREG-0654, E. 5., 7., G.3.a., G.4, a., b., c.)

The State, Aiken, Allendale and Barnwell counties will demonstrate the ability to coordinate the formulation and dissemination of accurate information and instructions to the news media at the Emergency News Center (ENC). Rumor control for the State will be demonstrated at the ENC. Rumor control for Aiken, Allendale and Barnwell counties will be demonstrated at the appropriate county EOC. Rumor control personnel will provide the FEMA Evaluator a rumor calls log.

6. Support Operations/Facilities

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

Criterion 6.a.1: The reception center/emergency worker facility has appropriate space, adequate resources, and trained personnel to provide monitoring, decontamination, and registration of evacuees and/or emergency workers. (NUREG-0654, J.10.h.; K.5.b.)

Reception Centers will be demonstrated out-of-sequence. At least six people will be monitored and registered. Personnel decontamination will be demonstrated via walk-through and discussion. All necessary supplies will be on hand. Walkways will not be covered with barrier material. A monitoring productivity rate will be developed by the FEMA evaluator. Demonstration will include the necessary radiological monitoring equipment and monitoring teams required to monitor 20% of the population allocated to the facility within 12 hours. At least two vehicles will be monitored and one vehicle will be processed as contaminated in accordance with local SOPs. Vehicle decontamination, where performed, will be demonstrated using water.

Reception Centers to be evaluated are:

Aiken County: South Aiken High School on May 4, 2010, 1600 hrs.

Allendale and Barnwell County: Allendale-Fairfax High School on May 4, 2010, 1900 hrs.

Sub-element 6.b, Monitoring and Decontamination of Emergency Worker Equipment

Criterion 6.b.1: The facility/ORO has adequate procedures and resources for the accomplishment of monitoring and decontamination of emergency worker equipment including vehicles. (NUREG-0654, K.5.b)

Emergency Worker Monitoring and Decontamination will be demonstrated out of sequence. All necessary supplies will be displayed in accordance with local SOPs. Walkways will not be covered with barrier material. Two emergency workers will be monitored. Personnel decontamination will be discussed with a walk-through. One emergency vehicle will be monitored and decontaminated (simulated) in accordance with local SOPs.

Note: Aiken County decontaminates emergency workers at the county's reception center.

Emergency Worker Decontamination Points to be evaluated:

Aiken County: Redcliffe Elementary School, on May 4th, 1030 hrs.

Allendale Co: Allendale-Fairfax High School, on May 4th, 1900 hrs.

Barnwell Co: Barnwell Rural Fire Station, on May 5th, 1100 hrs.

Sub-element 6.c, Temporary Care of Evacuees

Criterion 6.c.1: Managers of congregate care facilities demonstrate that the centers have resources to provide services and accommodations consistent with American Red Cross Mass Care guidelines. Managers demonstrate the procedures to assure that evacuees have been monitored for contamination and have been decontaminated as appropriate prior to entering congregate care facilities. (NUREG-0654, J.10.h., 12)

County shelters will be demonstrated by walk through concurrent with Evaluation Area 6.a above. Procedures that assure that only non-contaminated persons enter shelters will be demonstrated.

APPENDIX 4

EXERCISE SCENARIO

This appendix contains the exercise scenario submitted by Southern Company and the States of Georgia and South Carolina and approved by FEMA Region IV.

NRC/FEMA Graded Exercise 2010 SCENARIO TIME LINE

EVENT

08:00 Place simulator in run.

08:30 Simulator crew takes the shift

08:35 SO contacts simulator that "IA" Safety Injection Pump motor breaker is racked in and the pump has been verified ready to operate.

- Once SI pump started, bus fault on 1 AA02 due to breaker 16 ("1 A" Safety Injection Pump motor), poor electrical connection between the primary disconnect assembly and the bus stabs.

08:35 Fire in Switch gear IAA02 (loss of "A" train equipment)

- Fire Alarm received in control room.
- Fire Tech dispatched to location of fire alarm (IAA02).

08:38 Fire Technician reports lots of smoke and flames are coming out the vents on the switchboard. He cannot approach switch gear because of smoke. He recommends calling the Fire Brigade.

08:39 The fire Tech finds an injured person (non contaminated) who was touring the switch gear at time of fire.

- Control Room will initiate a 911 page for medical first responders.

08:39 Switch gear 1 AA02 de-energized. (LOSP)

- Rad monitors 1 RE-001, 1 RE-004, 1 RE-008, 1 RE-2562A &C, 1 RE-848, IRE-12442A &C power lost.

08:40 Fire Brigade is called away and off site assistance is requested from the Burke County Fire Department.

ALERT 08:50 ALERT EMERGENCY declared due to:

Initiating Condition

**HA2 - FIRE OR EXPLOSION Affecting the Operability of Plant Safety Systems
Required to Establish or Maintain Safe Shutdown (page 90)**

Threshold Value:

1. "FIRE OR EXPLOSION in a plant VITAL AREA AND affected system parameter indications show degraded performance OR plant personnel report VISIBLE DAMAGE to permanent structures OR safety related equipment in any of the following:

- Containment Building • Diesel Generator Building
- Fuel Handling Building • Auxiliary Building
- NSCW Cooling Towers • Diesel Fuel Oil Storage Tank Pumphouse
- Control Building • Auxiliary Feedwater Pumphouse

09:00 Burke County Fire Department and Ambulance arrive on site.

09:02 Emergency recall system activated

09:05 Offsite Notifications to the States and Local Authorities complete

09:20 Assembly and Accountability complete

- TSC, OSC and EOF activated
- A site dismissal without monitoring may be ordered at this time

09:41 Seismic event of >0.2 g occurs and crew enters AOP 18036-C.

- Turbine trip occurs.
- MDAFW "B" Trips when AFW actuates. (Below 38% SG NR level)
- Reactor does not trip automatically or from the control room and crew enters A TWT EOP 19211-C
- When reactor is tripped outside the Control room, three rods (H6,H10 and P6) do not fully insert (Emergency Boration via RWST)

~09:45 Reactor is manually tripped.

SITE AREA 09:56 SITE AREA EMERGENCY declared due:

Initiating Condition

SS2 – “Failure of RPS Instrumentation to complete or Initiate an Automatic Reactor Trip Once a RPS Setpoint Has Been Exceeded AND Manual Trip Was NOT Successful.”

Threshold Value

1. "Automatic AND manual trip were NOT successful as indicated by:

a. An automatic reactor trip setpoint was exceeded

AND

b. An automatic reactor trip did not occur

AND

c. A successful manual trip did NOT occur from the Control room”

10:00 EOF Dose Assessment activated and relieves TSC of dose assessment activities and FMT control.

10:11 Offsite Notifications to the States and Local Authorities complete.

10:15 Significant after-shock occurs

- Stuck rods insert further into core
- Large break LOCA - Containment pressure begins to rise to ~20 psi.
- Fuel damage due to RCS system dynamics with existing fuel leakers RE-005 and (1 1 RE-006)
- (1 RE-002 and 1 RE-003) to off scale from fuel damage

NOTE:

Containment Spray (CS) pump "1 B" may need to be tripped if containment pressure exceeds 21.5 psi. CS is actuated and containment pressure drops below 10 psi.

1051 Containment depressurization begins.

- Tear in containment HVAC purge supply isolation damper IHV-2627B (ORC) inside equipment room 114. (1 HV-2626B. IRC, fails open)
- Unmonitored release to environment indicated by containment pressure trending down.

1055 Call to simulator control room concerning steam exiting equipment room vents.

1106 GENERAL EMERGENCY declared due to:

Initialing Condition

FG-1 – "Loss of ANY Two Barriers AND Loss or Potential Loss of the Third Barrier." (Page 31)

Fuel Clad Threshold Value

5. Containment Radiation Monitors RE005/006 >6.0E+06 mr/hr

Reactor Coolant System Threshold Value

RCS leak Rate

Containment Threshold Value

2. Rapid Unexplained Containment Pressure Decrease Following Initial Pressure Increase

- Protective Action Recommendations based on wind direction from 330° (NNW, >326 - 349)
- (PAR 2): Evacuate Zones "A", "B-5" and "SRS to 2 miles"; Advise remainder of EPZ to monitor local radio/TV stations/TARs for additional information; consider use of KI in accordance with State Plans and policy.

1115 Teams formed to investigate the drop in containment pressure.

1131 Wind shift to new sector requiring a change in Protective Action Recommendations.

GENERAL 1145 CHANGE in PARs due to a "wind shift into a new sector"

- **Protective Action Recommendations based on wind direction from 320° (NW, >304 - 326)**
- **(PAR 2): Evacuate Zones "A", "B-5" and "SRS to 2 miles"; Advise remainder of EPZ to monitor local radio/TV stations/TARs for additional information; consider use of KI in accordance with State Plans and policy.**

1215 Drill terminated once ODA/FMT objectives are demonstrated and the team investigating the containment breach is briefed and enters equipment room vent area.