



# **AFTER ACTION REPORT**

## **V.C. Summer Nuclear Station (VCSNS)**

### **REP Program Exercise**

**[FINAL]**

**September 28, 2011**

**Radiological Emergency Preparedness (REP) Program**



**FEMA**

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**AAR**

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**Administrative Handling Instructions**

This After Action Report (AAR) for the 2011 V.C. Summer Nuclear Station (VCS) Radiological Emergency Preparedness, Partial Participation Plume Phase Emergency Planning Zone (EPZ) Exercise is considered a public document.

Points of Contact:

<b>Federal</b>	<b>State</b>	<b>Utility</b>
FEMA Region IV REP	South Carolina Emergency Management Division	South Carolina Electric & Gas Company
Mr. Larry Robertson	Mr. Nathan Nienhius	Mr. Robert E. Williamson
Central Section Chief	FNF Program Manager	Manager, Emergency Planning
3003 Chamblee-Tucker Road	2779 Fish Hatchery Road	P.O. Box 88
Atlanta, Georgia 30341	West Columbia, SC 29172	Jenkinsville, SC 29065
770/220-5466	803/737-8797	803/345-4464
<a href="mailto:larry.robertson@fema.dhs.gov">larry.robertson@fema.dhs.gov</a>	<a href="mailto:nnienhius@emd.sc.gov">nnienhius@emd.sc.gov</a>	<a href="mailto:rewilliamson@scana.com">rewilliamson@scana.com</a>



## Executive Summary

On September 28, 2011, the Department of Homeland Security, Federal Emergency Management Agency (FEMA) Region IV Radiological Emergency Preparedness (REP) Program staff evaluated a partial participation plume exposure pathway exercise in the emergency planning zone (EPZ) for the V.C. Summer Nuclear Station (VCS). VCS is located in Fairfield County, approximately 30 miles north of Columbia, South Carolina and is operated by South Carolina Electric & Gas. The VCS EPZ is divided into 13 emergency response planning zones. The 10 mile EPZ encompasses parts of Fairfield, Lexington, Newberry and Richland Counties; with an EPZ population of approximately 14,175.

FEMA's overall objective of the exercise was to assess the level of State and local preparedness in responding to a radiological emergency at VCS. 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 October 7, 2009. The qualifying emergency preparedness exercise was conducted November 1981.

The purpose of this report is to analyze exercise results, identify strengths to be maintained and built upon, identify potential areas for further improvement and support development of corrective actions.

The objectives for the 2011 VCS REP Exercise were as follows:

- **Objective 1:** Demonstrate the ability to provide emergency operations center (EOC) management including direction and control through the state and counties Emergency Operations Centers.
- **Objective 2:** Demonstrate the ability to provide protective action decision-making for state and county emergency workers and public through exercise play and discussions of plans and procedures.
- **Objective 3:** Demonstrate the ability to physically implement protective actions for state and county emergency workers and public through exercise demonstration.
- **Objective 4:** Demonstrate the ability to activate the Prompt Alert and Notification System utilizing the PNS/EAS System through exercise play.
- **Objective 5:** Demonstrate the effectiveness of plans, policies and procedures in the Joint Information Center (JIC) for joint (public and private sector) emergency information communications.

These objectives encompass the REP Program evaluation area criteria. Except as noted below, the objectives were successfully demonstrated during this exercise. FEMA identified the following three areas requiring corrective action (ARCA): 1) inaccurate information in an EAS message as

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a result of receiving inaccurate information regarding the protective action decision; 2) failure to issue permanent record dosimeters to emergency workers and 3) inadequate demonstration of the monitoring and decontamination of evacuees and their vehicles. The second and third ARCAs were identified during the August 31, 2011 demonstration in Fairfield County at the White Oak Conference Center. Fairfield County committed to additional training and successfully demonstrated the correction of the ARCAs during a demonstration on September 27, 2011.

FEMA will provide an Improvement Plan (IP) to the State of South Carolina that describes Strengths and Areas for Improvement observed during the exercise. The IP will be published under a separate cover and classified For Official Use Only (FOUO) in compliance with Homeland Security Exercise and Evaluation Program (HSEEP) standards.



## Section 1: Exercise Overview

### 1.1 Exercise Details

**Exercise Name**

2011 V.C. Summer Nuclear Station REP Program Evaluated Exercise

**Type of Exercise**

Full-Scale Exercise

**Exercise Out of Sequence Date(s)**

June 28-30 and August 31, 2011

**Exercise Date**

September 28, 2011

**Program**

FEMA Radiological Emergency Preparedness Program

**Mission**

Response

**Capabilities**

- Emergency Operations Center Management
- Emergency Public Information and Warning
- Citizen Evacuation and Shelter in Place
- Emergency Public Safety and Security Response
- Hazardous Materials Response and Decontamination
- Mass Care
- Triage and Pre-Hospital Treatment

**Scenario Type**

Radiological Emergency Preparedness, Partial Participation Plume Phase EPZ

### 1.2 Participating Organizations

The following agencies, organizations and units of government participated in the 2011 VCS REP Exercise.

<b>State of South Carolina</b>
Office of the Adjutant General, Emergency Management Division
Department of Health & Environmental Control, Bureau of Land Waste Management and Health Services
Department of Public Safety, Highway Patrol, and Bureau of Public Safety
Department of Social Services

# Homeland Security Exercise and Evaluation Program (HSEEP)

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2011 VC Summer REP Exercise

<b>Risk Jurisdictions</b>
Fairfield County, South Carolina
<ul style="list-style-type: none"> <li>• Emergency Management Agency</li> <li>• Fairfield County Fire Services</li> <li>• Sheriff's Office</li> <li>• Social Services</li> <li>• Fairfield County School District</li> <li>• Greenbrier/Bethel Fire Department</li> </ul>
Lexington County, South Carolina
<ul style="list-style-type: none"> <li>• Public Safety, Emergency Preparedness Division</li> <li>• Lexington County Fire Services</li> <li>• Sheriff's Office</li> <li>• Social Services</li> <li>• Irmo Fire Department</li> <li>• Richland-Lexington School District Five</li> </ul>
Newberry County, South Carolina
<ul style="list-style-type: none"> <li>• Disaster Preparedness Agency</li> <li>• Newberry County Fire Department</li> <li>• Emergency Medical Service</li> <li>• Sheriff's Office</li> <li>• Social Services</li> <li>• Public Works</li> <li>• Transportation</li> <li>• City of Newberry Fire Department</li> <li>• City of Newberry Police Department</li> <li>• Newberry County Memorial Hospital</li> <li>• Newberry County School District</li> </ul>
Richland County, South Carolina
<ul style="list-style-type: none"> <li>• Emergency Services</li> <li>• Sheriff's Office</li> <li>• Animal Care</li> <li>• Social Services</li> <li>• Columbia Fire Department</li> </ul>
<b>Non-Governmental Organizations</b>
Amateur Radio Emergency Services (ARES)/Radio Amateur Civil Emergency Services (RACES)
American Red Cross (ARC), Central South Carolina Chapter
<b>Federal Organizations</b>
Nuclear Regulatory Commission
Federal Emergency Management Agency

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## Section 2: Exercise Design Summary

### 2.1 Exercise Purpose and Design

DHS/FEMA administers the REP Program pursuant to the regulations found in Title 44 Code of Federal Regulation (CFR) parts 350, 351 and 352. 44 CFR 350 codifies 16 planning standards that form the basis for radiological emergency response planning for licensee, State, tribal and local governments impacted by the EPZs established for each nuclear power plant site in the United States. 44 CFR 350 sets forth the mechanisms for the formal review and approval of State, Tribal and local government RERPs and procedures by DHS/FEMA. One of the REP program cornerstones established by these regulations is the biennial exercise of offsite response capabilities. During these exercises affected State, Tribal and local governments demonstrate their abilities to implement their plans and procedures to protect the health and safety of the public in the event of a radiological emergency at the nuclear plant.

The results of this exercise together with review of the RERPs and procedures and verification of the periodic requirements set forth in NUREG-0654/FEMA-REP-1 through the Annual Letter of Certification and staff assistance visit enables FEMA to provide a statement with the transmission of this final AAR to the NRC that the affected State, Tribal and local plans and preparedness are (1) adequate to protect the health and safety of the public living in the vicinity of the nuclear power facility by providing reasonable assurance that appropriate protective measures can be taken offsite in the event of a radiological emergency; and (2) capable of being implemented.

Formal submission of the RERPs for VCS to FEMA by the State of South Carolina occurred on March 31, 1981. Formal approval of the State of South Carolina's RERP was granted on November 13, 1981 under 44 CFR 350.

A REP exercise was evaluated on September 28, 2011, and included evaluations of the out-of-sequence activities held during the week of June 27 through 30 and August 31, 2011.

### 2.2 FEMA Exercise Objectives and Capabilities

The objectives for the 2011 VCS REP Exercise encompass the REP criteria agreed upon for this exercise:

**Objective 1:** Demonstrate the ability to provide emergency operations center (EOC) management including direction and control through the state and counties Emergency Operations Centers.

**Objective 2:** Demonstrate the ability to provide protective action decision-making for state and county emergency workers and public through exercise play and discussions of plans and procedures.

**Objective 3:** Demonstrate the ability to physically implement protective actions for state and county emergency workers and public through exercise demonstration.

**Objective 4:** Demonstrate the ability to activate the Prompt Alert and Notification System utilizing the PNS/EAS System through exercise play.

**Objective 5:** Demonstrate the effectiveness of plans, policies and procedures in the Joint Information Center (JIC) for joint (public and private sector) emergency information communications.

Capabilities-based planning allows for exercise planning teams to develop exercise objectives and observe exercise outcomes through a framework of specific action items that were derived from the Target Capabilities List (TCL). The capabilities listed below form the foundation for the organization of all FEMA Region IV REP Program objectives and observations in this exercise.

- **Emergency Operations Center Management:** Is the capability to provide multi-agency coordination (MAC) for incident management by activating and operating an EOC for a pre-planned or no-notice event. EOC management includes EOC activation, notification, staffing, and deactivation; management, direction, control, and coordination of response and recovery activities; coordination of efforts among neighboring governments at each level and among local, regional, state, and federal EOCs; coordination public information and warning; and maintenance of the information and communication necessary for coordinating response and recovery activities.
- **Emergency Public Information and Warning:** Is the capability that includes public information, alert/warning and notification. It involves developing, coordinating, and disseminating information to the public, coordinating officials, and incident management and responders across all jurisdictions and disciplines effectively under all hazard conditions.
- **Citizen Evacuation and Shelter in Place:** Is the capability to prepare for, ensure communication of, and immediately execute the safe and effective sheltering-in-place of an at-risk population (and companion animals), and/or the organized and managed evacuation of the at-risk population (and companion animals) to areas of safe refuge in response to a potentially or actually dangerous environment. In addition, this capability involves the safe reentry of the population where feasible.
- **Emergency Public Safety and Security Response:** Is the capability to reduce the impact and consequences of an incident or major event by securing the affected area, including crime/incident scene preservation issues as appropriate, safely diverting the public from hazards, providing security support to other response operations and properties, and sustaining operations from response through recovery. Public Safety and Security Response requires coordination among officials from law enforcement (LE), fire and EMS.

- **Hazardous Materials Response and Decontamination:** Is the capability to assess and manage the consequences of a hazardous materials release, either accidental or as part of a terrorist attack. It includes testing and identifying all likely hazardous substances onsite; ensuring that responders have protective clothing and equipment; conducting rescue operations to remove affected victims from the hazardous environment; conducting geographical survey searches of suspected sources or contamination spreads and establishing isolation perimeters; mitigating the effects of hazardous materials, decontaminating on-site victims, responders, and equipment; coordinating off-site decontamination with relevant agencies, and notifying environmental, health, and law enforcement agencies having jurisdiction for the incident to begin implementation of their standard evidence collection and investigation procedures.
- **Mass Care:** Is the capability to provide immediate shelter, feeding centers, basic first aid, bulk distribution of needed items, and related services to persons affected by a large-scale incident, including special needs populations. Special needs populations include individuals with physical or mental disabilities who require medical attention or personal care beyond basic first aid. Other special-needs populations include non-English speaking populations that may need to have information presented in other languages. The mass care capability also provides for pet care/handling through local government and appropriate animal-related organizations. Mass care is usually performed by nongovernmental organizations (NGO), such as the ARC, or by local government-sponsored volunteer efforts, such as Citizen Corps. Special-needs populations are generally the responsibility of local government, with medical needs addressed by the medical community and/or its alternate care facilities. State and Federal entities also play a role in public and environmental health by ensuring safe conditions, safe food, potable water, sanitation, clean air, etc.

Additionally, each objective is linked to one or more capabilities. Based upon the identified exercise objectives, the evaluated capabilities were:

- Objective 1: Capability - EOC Management
- Objective 2: Capability - EOC Management  
Capability - Emergency Public Information and Warning
- Objective 3: Capability - EOC Management  
Capability - Emergency Public Safety and Security Response  
Capability - Citizen Evacuation and Shelter-in-Place  
Capability - Hazardous Materials Response and Decontamination  
Capability - Mass Care (Sheltering, Feeding, Related Services)
- Objective 4: Capability - Emergency Public Information and Warning
- Objective 5: Capability - Emergency Public Information and Warning

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## Section 3: Analysis of Capabilities

### 3.1 Exercise Evaluation and Results

This section contains the results and findings of the evaluation of all jurisdictions and functional entities that participated in the September 28, 2011 partial participation plume phase exercise and OOS activities. Exercise criteria are listed by number and the demonstration status of those criteria are indicated by the use of the following terms:

- Met (No Deficiency or ARCA(s) assessed and no unresolved ARCA(s) from prior exercise)
- ARCA(s) assessed or unresolved ARCA(s) from previous exercises
- Deficiency assessed
- Plan Issues
- Not Demonstrated

### 3.2 Evaluation Capability Summaries

#### 3.2.1 State of South Carolina

##### **Emergency Operations Center Management:**

The South Carolina Emergency Management Division (SCEMD) demonstrated this capability at the State Emergency Operations Center (SEOC). The SEOC was alerted, mobilized and activated in a timely manner. Personnel were alerted and mobilized in accordance with alert procedures in plans. The State Warning Point performed well despite being in a temporary office area while upgrades are taking place. The Chief of Operations and staff under his guidance, were impressive and exercised expert direction and control. The state decision making process was defined and deliberate, which aided in making timely and decisive protective action decisions with the counties as conditions evolved. The Chief of Operations conducted numerous briefings and updates that allowed input from key staff and kept all staff abreast of changing conditions. These briefings also allowed for the forecasting that contributed to the efficiency of operations and ongoing coordination with other agencies and affected jurisdictions involved with the response effort. However, SCEMD provided the PIO inaccurate information regarding protective action decision #3; this inaccurate information was subsequently released to the public and media via Emergency Alert System (EAS) message 3 and news release (NR) 6.

The SEOC has sufficient space and equipment to support emergency response efforts. Each state agency had an operational area, easily identifiable and functional for conducting their duties. Maps and status boards were visible and made vital information readily available to the staff for reference and aided in situational awareness. The SEOC staff demonstrated competence in the ability to protect the health and safety of the public in the event of an incident at VCS and performed their duties in accordance with established plans and procedures.

For this capability the following REP criteria were met: 1.a.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2, 3.d.1 and 3.d.2.

**Area Requiring Corrective Action:**

**061-11-1c1-A1:** Emergency Operations Center Management; SCEMD did not provide accurate protective action decision (PAD) information and instructions to the Public Information Officer for release to the public and news media which was subsequently released with the inaccurate protective action decision.

**Condition:** The SEOC issued six news releases (NR 1-6) and three EAS messages (EAS 1-3) during this exercise. SEOC procedures provide message approval for release to the public and news media through a routing and approval process that originates with the Public Information Officer and includes a requirement of signatures of two approving officials before it can be released to the public. The SEOC effectively produced, routed and disseminated EAS-1 & 2 and NR 1 thru 5 under this process, in a timely manner and with accurate information. However, EAS-3 and NR-6, regarding PAD 3 at 1255, were released after going through this process, with inaccurate information. Both EAS-3 and NR-6 inaccurately stated that residents and emergency responders in zones C1, D1 and D2 should ingest KI. The coordinated PAD 3, included guidance for emergency responders and residents in the evacuated zones A0, E1, E2, F1 and F2 only to ingest KI, and those residents in zones C1, D1 and D2 to shelter in place.

**Possible Cause:** It appears that from the point the PAD was made, concurred and drafted there was a misunderstanding of what was conveyed and agreed upon and/or a lapse in the process that validates the accuracy of the information.

**References:**

1. SCORERP, Basic Plan, Annex 3, Appendix 2 – Emergency Public Information Procedures.
2. NUREG-0654, E. 5, 7; G.3.a, G.4.c
3. SEOC EEG, Emergency Public Information and Warning capability, activity 1.2, Ensure OROs provide accurate emergency information and instructions to the public and the news media in a timely manner.

**Effect:** As a result of the inaccurate information being released which contradicts the agreed upon PAD a number of things could have occurred, to include:

1. Unnecessary ingestion of KI could consequently raise the risk of members of the general public suffering from side effects of KI when it was not necessary.
2. Created confusion among local communities' public service and residents; delayed response for adequate protection either from exposure or not



taking KI in advance. Members of the public would be confused as to whether they should shelter in place or leave their homes to go get KI. This could have resulted in County EOCs and 911 Centers being overwhelmed with calls and inquiries.

3. May have caused an unnecessary increase in demand for KI, which may not have been able to be fulfilled or, could deplete KI resources that may be legitimately needed later.

### **Recommendations:**

1. Implement measures to ensure compliance with established procedures to ensure only accurate and appropriate information is disseminated.
2. Establish a method or system to ensure that decisions made on the conference call are understood by all parties and before releasing the decisions there is final agreement on the decisions.

### **Emergency Public Information and Warning:**

The SCEMD Public Information staff demonstrated the capability to promptly alert, notify and warn the public of a simulated emergency at VCS, by coordinating with (via conference call) Fairfield, Lexington, Newberry and Richland Counties, other agencies in the State of South Carolina, and with VCS.

Three Emergency Alerting System (EAS) messages and six news releases were generated, approved and disseminated. Message EAS-1 was faxed to Radio Station WCOS 1400 AM/97.5 FM, and its broadcast was simulated. VCS simulated the activation of the sirens. SCEMD simulated faxing the other two EAS messages. WCOS-FM serves as the Local Primary (LP-1) source for EAS messages in the VCS area and also as the State Primary (SP-1). WCOS personnel received and authenticated an EAS message from SCEMD. They properly demonstrated procedures for recording the message and broadcasting it statewide over the EAS at the time requested by SCEMD. The station is staffed twenty-four hours per day and is equipped with sufficient emergency generators to be capable of broadcasting an EAS message at any time.

SCEMD PIOs issued six news releases (NR #1-6), three EAS messages (EAS #1-3) and the State Declaration of Emergency during this exercise with inaccurate information in a combination of four of these releases. SCEMD PIOs faxed all EAS messages and news releases to the Joint Information Center (JIC) for distribution to the media, to the four risk Counties, and simulated their placement on the SCEMD website, which would provide additional emergency information for the public.

In accordance with the Extent of Play, Public Inquiry for the State was demonstrated at the JIC. The SEOC Public Information Officer (PIO) supported this effort, through coordination with the JIC.

For this capability, the following REP criteria were met: 5.a.1, 5.a.3 and 5. b.1.

**Hazardous Materials Response and Decontamination:**

South Carolina Department of Health and Environmental Control (DHEC) dose assessment personnel pre-positioned near the SEOC, described procedures to effectively alert, notify, and mobilize emergency personnel in a timely manner. The dose assessment personnel occupied adequate facilities; possessed equipment, maps, displays, and other supplies sufficient to support emergency operations; and successfully established, maintained, and managed primary and auxiliary communications capabilities between VCS and assessment personnel. The DHEC Emergency Support Function 10 (ESF-10) Radiological Emergency Response Coordinator (ERC) demonstrated effective direction and control over the dose assessment and ESF-10 group. ESF-10 developed protective action recommendations (PARs); including the administration of potassium iodide (KI), for the general public considering VCS dose projections, meteorological data, and DHEC dose projections using RASCAL software. Timely PARs were provided to the Governor's Authorized Representative (GAR). ESF-10 used a decision-making process which considered relevant factors and coordinated with ESF-8 to ensure that an exposure control system, including the use of KI, was in place for emergency workers. Field teams were not demonstrated during this exercise, but their activation, exposure control, and management to effectively obtain sufficient information to characterize the release was discussed.

For this capability the following REP criteria were met: 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.

**Emergency Public Safety and Security Response:**

Command and control of the State TCPs are the responsibility of the South Carolina Highway Patrol (SCHP) representative who is located in the Fairfield County EOC. Overall management of the TCPs from the state perspective is completed by ESF 16 (Emergency Traffic Management) at the SEOC. This capability was demonstrated in two separate parts; implementation by out of sequence interview and management by the law enforcement representative in the Fairfield County EOC and ESF-16 in the SEOC. State TCPs are established at the direction of ESF-16 and the Fairfield County Emergency Management Director at the SAE ECL. Troopers demonstrated they can be activated, mobilized and deployed to assigned TCPs in a timely manner through their use of reliable communications systems. Assigned troopers were knowledgeable in directing evacuees out of affected areas to the reception center, immediate clearance of impediments and use of issued exposure control equipment. The SCHP successfully demonstrated appropriate traffic control to include provisions for accurate instructions for assigned personnel and the general public as well as sufficient equipment to manage the TCP and support state and county emergency operations.

For this capability the following REP criteria were met: 1.a.1, 1.d.1, 1.e.1, 3.a.1, 3.b.1, 3.d.1 and 3.d.2.

**3.2.2 Joint Operations****3.2.2.1 Emergency Operations Facility (EOF)****Emergency Operations Center Management:**

In accordance with established procedures, following the declaration of Alert emergency classification level (ECL) the utility operator activated the facility's Emergency Response Organization. At this time the Emergency Director's responsibilities were transferred from the Control Room to the Technical Support Center, and actions were initiated to staff the Emergency Operations Facility (EOF). There were adequate supplies and equipment available to support all response operations.

Direction and Control of emergency management operations were the responsibility of the utility operator and were fulfilled in a professional and effective manner. The State and local government officials dispatched to the EOF served in an all important liaison capacity between the utility operator and their respective EOCs. The government officials in conjunction with the utility operators Emergency Director, effectively communicated, coordinated and functioned as a cohesive response and recovery unit.

The State's independent accident assessment, at the Site Area Emergency classification, ordered the evacuation of affected zones based strictly on deteriorating plant conditions prior to the receipt of Protective Action Recommendations (PARs) from the utility operator. Once a radiological release (simulated) did occur, and the utility operator declared a General Emergency, the utility operator developed and provided PARs to the State which was consistent with the Protective Action Decision (PAD) already implemented by the State.

All PARs and PADs were based on sound technical analyses, which included environmental field measurements, computerized dose assessment models, and a thorough understanding of the simulated emergency at hand, and interactions with the utility operator's senior staff.

For this capability the following REP criterion was met: 2.b.1.

**3.2.2.2 Joint Information Center (JIC)****Emergency Public Information and Warning:**

The ability to provide emergency information and instructions to the media was successfully demonstrated at the JIC. The different agency representatives preformed their roles in accordance with their published procedures and plans. The VCS JIC was co-located with the EOF. The JIC served as the central point of contact for the distribution and release of information to the media and public during the simulated emergency at VCS. The JIC was maintained by the utility and encompassed two rooms. This fixed facility offered ample space for the Public Information Officers (PIO's) and supplemental

technical staff from the utility, State of South Carolina, the Counties of Fairfield, Newberry, Lexington, Richland, and Federal agencies to perform the duties required of them.

The JIC was activated in accordance with published plans and procedures in support of VCS following the declaration of Alert ECL. For this exercise, in accordance with the Extent of Play Agreement (EOPA), State and County PIOs were pre-positioned in the area and responded to the JIC upon notification by their agencies of the Alert ECL.

The JIC was well equipped and had redundant communication systems, which includes landline phones, facsimiles, and internet connectivity. Primary communications between the JIC and outside locations was by commercial telephone, with cellular telephones, WebEOC and two-way radio networks being secondary. Equipment and supplies were sufficient to support JIC operations.

The process for preparing and distributing news releases varied among the different agencies. Discussions with state and local representatives confirmed that all news releases were prepared and approved at their respected EOCs and forwarded to the JIC for dissemination to the assembled media and JIC staff. The staff of the JIC acted independently of each other. No joint releases were prepared or distributed. A total of 12 press releases were received and distributed in the JIC during the exercise. Four media briefings were also conducted during the exercise. The only joint collaboration observed was during the discussion prior to departing to the formal media briefings.

The public inquiry and rumor control function was performed at both the JIC and county EOC's. SCEMD provided a single coordinator to handle public inquiry calls. While calls received by this individual were handled effectively and efficiently, no unified tracking of calls received by the state, the utility and the four at-risk counties existed to identify trends and coordinate responses.

For this capability the following REP criteria were met: 1.a.1, 1.d.1, 1.e.1 and 5.b.1.

### **3.2.3 Risk Jurisdictions**

#### **3.2.3.1 Fairfield County**

##### **Emergency Operations Center Management:**

The Fairfield County Commissioner, Administrator, Emergency Management Director and support staff successfully demonstrated the capability to provide multi-agency coordination for incident management in response to an incident at VCS. Fairfield County used staff and resources effectively to alert, notify, and mobilize key staff in a timely manner. The Command Staff coordinated all response activities with Federal, State and local agencies through frequent staff briefings and round table discussions. The new EOC had sufficient equipment, supplies, space and communications to support emergency response operations. The EMD was in command and control throughout the

exercise and was very proficient in ensuring the support staff maintained situational awareness. All personnel were consistently proactive in their responses to the emergency. The entire staff was well trained, knowledgeable and performed their duties in accordance with established plans, procedures as modified by the extent of play agreement.

For this capability the following REP criteria were met: 1.a.1, 1.b.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2, 2.c.1, 3.a.1, 3.b.1, 3.c.1, 3.c.2, 3.d.1 and 3.d.2.

### **Emergency Public Information and Warning:**

The roles Fairfield County had in Emergency Public Information and Warning were to provide their representative at the JIC with information on the actions they were taking to protect their citizens, to field telephone calls from the public, and to provide backup alerting in the event of a siren failure.

There were no press releases generated or released from the EOC. The County had a PIO at the JIC; however no county specific releases were made from either location. All JIC press releases and EAS messages were collected by the EOC communications officers and reviewed following their release. Calls by citizens were fielded by public inquiry staff. The callers were provided accurate information and directed to the appropriate sources. There was no coordination between the public inquiry staff and PIO was due to the nature of the exercise injects.

Fairfield County has planned and developed procedures to ensure public alerting in the event of siren failures. Once the County is notified of a siren failure(s) the County Emergency Management Director would authorize backup route alerting. Backup route alerting would be physically performed by county warning teams comprised of members of the Jenkinsville/Monticello, Blair and Greenbrier/Bethel Fire Departments; all of whom are volunteer departments.

During out of sequence activities associated with this exercise the Greenbrier/Bethel Fire Department successfully demonstrated backup route alerting in the five square mile area surrounding siren #16. The issuance of appropriate dosimetry, procedures and management of radiological exposure to the warning team was demonstrated in accordance with county and state plans and procedures. Warning team members read aloud, in a slow and articulate manner, pre-scripted messages that included all elements required by current FEMA REP Guidance.

For this capability the following REP criteria were met: 5.a.1, 5.a.3 and 5.b.1.

### **Citizen Evacuation and Shelter in Place:**

The ability to safeguard students and staff in the event of an incident involving VCS was successfully demonstrated through an interview with the Principal of Kelly Miller Elementary School, Fairfield County Schools Transportation staff and Fairfield County

Sheriff's Office on August 31, 2011. All were well conversant with their respective emergency plans and it was apparent that key personnel were familiar with each other and have coordinated plans and procedures. Fairfield County Schools have sufficient buses to relocate all students in a timely manner and the host site is prepared to accept the relocating students and assist in their supervision and eventual release to parents/guardians. Staff and faculty have specific functions and these are addressed during semi-annual scheduled school drills and evacuation/relocation exercises. All interviewed were knowledgeable and demonstrated a professional and caring demeanor.

For this capability the following REP criterion was met: 3.c.2.

### **Emergency Public Safety and Security Response:**

Command and control of the TCPs are the responsibility of the Sheriff's representative in the EOC. This capability was demonstrated in two separate parts; implementation by out of sequence interview and management by the Sheriff's representative in the EOC. TCPs were established at the SAE ECL. County deputies demonstrated they can be activated, mobilized and deployed to their assigned TCPs in a timely manner thru their use of reliable and redundant communications systems. Assigned deputies were knowledgeable in directing evacuees out of affected areas to the county reception center, immediate clearance of impediments and use of issued exposure control equipment. Fairfield County successfully demonstrated appropriate traffic control to include provisions for accurate instructions for assigned personnel and the general public as well as sufficient equipment to manage the TCP and support county emergency operations.

For this capability the following REP criteria were met: 1.a.1, 1.d.1, 1.e.1, 3.a.1, 3.b.1, 3.d.1 and 3.d.2.

### **Hazardous Materials Response and Decontamination:**

Fairfield County Emergency Management and County volunteer organizations' personnel successfully demonstrated the capability to assess and manage the consequences of a hazardous materials release, decontaminating victims, decontaminate on-site responders and equipment; and coordinating off-site decontamination with relevant agencies.

The reception area at the White Oaks Conference Center had ample space to provide monitoring, decontamination and registration of evacuees and emergency workers. The parking area was sufficient to handle both evacuees and emergency worker vehicles. Workers were knowledgeable of exposure limits and contamination limits. Emergency workers were knowledgeable of their exposure limits, call back values and turn back limits. Decontamination monitoring was sufficient to monitor the expected evacuee population within a 12-hour period.

### **Area Requiring Corrective Action:**

**061-11-1e1-A2–Resolved:** Hazardous Materials Response and Decontamination;



Fairfield County failed to provide and issue Permanent Record Dosimeters (PRDs) to their emergency workers during the OOS demonstration of August 31, 2011.

**Condition:** Fairfield County establishes Emergency Worker Decontamination (EWD) operation which combines the functions of the EWD with the reception of evacuees to the shelters. Personnel responsible for receiving, surveying and decontaminating emergency workers and evacuees were each issued only Direct Reading Dosimeters (DRDs).

**Possible Cause:** During the evaluation and through interview with County personnel, it was evident that they did not receive sufficient training in radiological exposure control procedures. The South Carolina Organizational Radiological Emergency Response Plan (SCORERP), Annex 6, Basic Plan, Radiological Exposure Control, and Appendix 2, clearly states that:

“Emergency workers assigned to low-exposure rate areas outside the plume exposure pathway (e.g., at reception centers, counting laboratories, emergency operations/communications centers) will be equipped with a PRD. These workers may also be assigned individual SRDs with a range capable of measuring a radiation exposure of 0-500 mR or they may be monitored by dosimeters strategically placed in the work area.”

### References:

1. South Carolina Organizational Radiological Emergency Response Plan (SCORERP), Annex 6, Basic Plan, Radiological Exposure Control, and Appendix 2.
2. NUREG-0654/FEMA REP-1; K.3.a.
3. 2011 V.C. Summer Nuclear Station RCCC, TCL Capability: Hazardous Materials (HAZMAT) Response and Decontamination, Activity 1: Site Management and Control, Task 1.2, Equipment, Dosimetry, KI, and other supplies.

**Effect:** Failure to properly manage the Radiological Exposure of the EWD and RCCC workers may cause long term health issues. PRDs must be worn in environments where workers may or will receive radiological exposure. The PRD measures the actual or whole dose the wearer receives and provides physical evidence of radiological exposure.

### Recommendations:

1. Provide additional radiological exposure control training to all personnel involved in the EWD and RCCC. The training should include instruction on the difference between DRDs and PRDs, the specific purpose of each type of dosimeter and required record keeping.

2. Develop a standardized “Emergency Worker Kit.” This kit should contain the appropriate type equipment with instructions that each worker will need for radiological exposure control.

**Corrective Action Demonstrated:** Fairfield County and the State provided additional radiological training to all personnel involved with EWD and RCCC operations. Standardized “emergency worker kits” that contained appropriate personal dosimetry (DRDs, PRDs and KI) along with detailed instructions on use were developed and issued during the September 27, 2011 re-demonstration. This additional training and personal dosimetry issuance during the re-demonstration resolved this ARCA.

**Area Requiring Corrective Action:**

**061-11-1e1-A3–Resolved:** Hazardous Materials Response and Decontamination; During the EWD and RC demonstration of August 31, 2011, Fairfield County personnel did not adequately demonstrate their capability to monitor and decontaminate emergency workers or evacuees and their vehicles.

**Condition:** Personnel staffing the EWD and RC did not know their duties or responsibilities related to the monitoring personnel or vehicles. The path they laid out for evacuees to follow allowed for contaminated evacuees wandering uncontrolled around the reception and congregate care areas.

Among the problems identified were that personnel were unsure of the procedures for source checking the portal monitor or the Ludlum Model 3 survey instruments, how to use them and what the readings meant. They also did not check their DRDs.

No evacuee was monitored by a survey instrument after alarming the portal monitor. If they alarmed the portal monitor they were assumed to have contamination over their entire body and had to completely disrobe and take a shower even if only their shoes were contaminated.

After showering all personnel dressed themselves in a tyvek suit prior to being monitored (tyvek suits would prohibit the detection of any remaining contamination). They stated that some type of foot cover could be provided.

**Possible Cause:** Personnel had not received sufficient training and operational time with the equipment.

**References:**

1. Fairfield County Emergency Operations Plan (EOP) Annex Q Sections M and S.



2. South Carolina Operational Radiological Emergency Response Plan (SCORERP) Section III. A, B., C; Section VI. A., B; Section VIII. A., B., C., D
3. NUREG-0654/FEMA REP-1; J.12; K.5.a., b; O.4.c., d
4. 2011 V.C. Summer Reception Congregate Care Center Exercise Evaluation Guide (EEG) Hazardous Materials (HAZMAT) Response and Decontamination Capability, Activity 2, Task 2.

**Effect:** Contaminated evacuees could be released without being properly decontaminated, or evacuees who were not contaminated could be made to undergo unnecessary decontamination procedures, or contaminated evacuees could wander throughout the area spreading contamination. The monitoring and decontamination personnel did not demonstrate the ability to protect the safety and health of the general public.

**Recommendations:**

1. Review and revise the procedures as necessary to ensure that the routes used by clean and contaminated individuals are separated and lead the contaminated individual directly to the decontamination area.
2. Provide additional training to all personnel involved in the EWD and RCCC. In addition to classroom training, the students should have the opportunity to set up and use the equipment as they would if there were an emergency.
3. Have the same personnel re-perform these tasks under evaluation.

**Corrective Action Demonstrated:** Fairfield County reviewed and revised procedures that ensured the flow path and routes used by “clean” and contaminated individuals were separated and clearly marked with signage. Additional radiological training was provided to all personnel involved with EWD and RCCC operations which included “hands on” training and EWD and RC set up. The revised procedures were successfully re-demonstrated September 27, 2011, thus resolving this ARCA.

For this capability the following REP criteria were met: 1.a.1, 1.e.1, 3.a.1, 6.a.1 and 6.b.1

**Mass Care:**

Fairfield County Chapter of the American Red Cross (ARC) volunteers, assisted primarily by the County Social Services personnel demonstrated the ability to meet the congregate care needs of evacuees during a nuclear incident at VCS. The county employees and ARC volunteers worked together as a team and demonstrated shared responsibilities in meeting the needs of evacuees. Personnel participating in the demonstration were well-versed in their roles.

For this capability the following REP criterion was met: 6.c.1.

### 3.2.3.2 Lexington County

#### **Emergency Operations Center Management:**

Lexington County Emergency Preparedness Division and EOC staff successfully demonstrated the EOC management capability to provide multi-agency coordination for incident management by activating and operating their EOC for the (simulated) accident at VCS.

Personnel were effectively notified and activated to staff the EOC and each had access to an appropriate amount of equipment, supplies and maps to support their needs. Redundant communication systems insured the EOC had the ability to communicate with other agencies. The staff also coordinated public information and warnings necessary for coordinating response activities.

The Director of Emergency Preparedness Division (DEPD) demonstrated good direction and control in coordinating response, PADs and recovery activities among neighboring governments at the local, regional and State levels. He used the utility liaison to keep the EOC staff informed and up to date on plant status. During briefings he would poll all the agencies as to their current status and had the agency representatives review their expected actions for potential future actions. Although the EOC experienced problems with receiving communications from the utility and the State, the DEPDP used effective work arounds to overcome these problems.

For this capability the following REP criteria were met: 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 and 3.d.2.

#### **Emergency Public Information and Warning:**

The primary means to alert citizens was the siren system that was activated by the utility. When the State and counties agree that a PAD has been made that affects the public the State coordinates with the utility to activate the sirens. Subsequent to the siren activation the State transmits an EAS message to the radio station.

During an EOC briefing, the DEPDP and a representative from the Sheriff's Department discussed the possibility of needing to provide backup alert and notification to the public in the event of a siren failure. Information obtained during the discussion, followed by an interview with the Sheriff's Commander, sufficiently demonstrated that the coverage area around each siren could be indentified in order to conduct backup route alerting.

A County PIO liaison represents Lexington in the JIC and coordinates information with the EOC PIO. By interview, the Public Inquiry group sufficiently demonstrated the capability to establish and receive anticipated questions from the public regarding the emergency and to track any possible rumors that may need clarifying through additional broadcast information. If Lexington County EOC needed to provide specific information

to the County's residents, that information would be included in News Releases from the JIC.

For this capability the following REP criteria were met: 5.a.1, 5.a.3 and 5.b.1.

**Citizen Evacuation and Shelter in Place:**

Personnel from Lexington-Richland School District Five successfully demonstrated their ability to safeguard students, staff and faculty in the event of an incident involving VCS. This was completed by interview with the Principals and selected staff of Chapin High School, Chapin Middle School, and Chapin Elementary School, the District Transportation Manager, District Crisis Management, and Lexington County Emergency Management Agency. All were well conversant with their plans and it was apparent that all plans were thoroughly coordinated. The school district has sufficient buses to relocate students in a timely manner and the host school is prepared to accept the students and assist in their supervision and eventual release to parents/guardians. Staff and faculty have specific functions and these are addressed during regularly scheduled school 'lock down' drills and evacuation/relocation exercises.

For this capability the following REP criterion was met: 3.c.2.

**Emergency Public Safety and Security Response:**

This capability was demonstrated in two separate parts; implementation by out of sequence interview and management by the law enforcement representative in the EOC. Lexington County Sheriff's Department deputies can be activated, mobilized and deployed to assigned TCPs in a timely manner. Command and control of the TCPs as well as resource coordination and impediment removal is completed from the EOC. TCPs were established at the SAE ECL. The interviewed deputy was knowledgeable in directing evacuees out of affected areas to the reception center. The deputy was also competent in the use of issued exposure control equipment. Assigned county deputies would also provide and maintain an effective law enforcement presence in maintaining perimeter control of the evacuated areas.

For this capability the following REP criteria were met: 1.a.1, 1.d.1, 1.e.1, 3.a.1, 3.b.1, 3.d.1 and 3.d.2.

**Hazardous Materials Response and Decontamination:**

Lexington County Emergency Management and Lexington County Fire Services personnel successfully demonstrated the capability to assess and manage the decontaminating of victims and emergency workers, their equipment.

Both the reception area and the monitoring and decontamination areas at the Crossroads Middle School had ample space to handle evacuees and emergency workers simultaneously. The parking area was sufficient to handle both evacuees and emergency worker vehicles. Evaluators observed all instruments being set up for operation and

workers were knowledgeable of equipment assembly and operational checks, to include range of readings verification on the Ludlum 3, and centerline checks of the Portal Monitor. Personnel working the facility were well trained in radiological monitoring, records keeping, and decontamination of personnel

Decontamination monitoring was sufficient to monitor the expected evacuee population within a 12-hour period.

For this capability the following REP criteria were met: 1.a.1, 1.e.1, 3.a.1, 6.a.1 and 6.b.1

**Mass Care:**

The Lexington County Department of Social Services (DSS) and the Central South Chapter of the ARC demonstrated the capability to provide services and accommodations for evacuees arriving at the Crossroads Middle School Reception Center. The registration desk was staffed with DSS and ARC personnel and had the ability to provide staffing for a 24 hour emergency response operation.

The registration process included ensuring that evacuees had been monitored and decontaminated. Evacuees were then required to fill out an ARC Shelter Registration Form and a Safe and Well Form. In accordance with Lexington County plans and procedures, evacuees are not provided shelter at this location. The County has established agreements with local hotels to provide shelter for evacuees and their pets. If an evacuee opts for sheltering, their needs are assessed by DSS and the appropriate facility is assigned. Feeding, clothing and medical needs would be met through in house and/or local resources such as restaurants, etc. Transportation, if needed, to the hotel will be provided by Lexington County School District buses, county vehicles, etc.

If evacuees are ordered to ingest KI, DHEC personnel would distribute KI to the evacuees prior to their departure. All documentation of this distribution is the responsibility of DHEC.

All activities were performed in accordance with established plans, procedures and the extent of play agreement.

For this capability the following REP criteria were met: 1.a.1, 1.e.1 and 6.c.1.

**3.2.3.3 Newberry County**

**Emergency Operations Center Management:**

Newberry County successfully demonstrated their response to an incident at VCS. The Disaster Preparedness Agency Director recalled essential personnel at the Alert ECL using an electronic system that contacts selected personnel by phone, cell phone, text and email. In accordance with the Extent of Play Agreement, staff were pre-positioned in the area, responded and quickly stood up the EOC after this notification was made.

Redundant and interoperable communications included landline phones, county cell phones, WebEOC, county email and VOIP options; all were in operation for this exercise with no failures. Equipment, displays and supplies were sufficient to support the county's emergency operations.

The Disaster Preparedness Agency Director demonstrated excellent direction and control. He conducted EOC briefings that were informative and assisted in keeping ESFs engaged in coordinating and managing the county's response. PADs for the county were discussed, made and coordinated with surrounding risk counties and the state as the situation dictated. The Director made sure all county agencies were informed when the decision to relocate schools, special needs individuals, and the general public was made. The people working in the Newberry County EOC for this exercise demonstrated a sound "team" approach in directing incident response. All made timely decisions and followed county plans and procedures as they relate to their response to an incident involving VCS.

For this capability the following REP criteria were met: 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 and 3.d.2.

#### **Emergency Public Information and Warning:**

Newberry County PIOs successfully demonstrated the ability to provide emergency public information and public inquiries in regards to county response to an incident at VCS. The county generated public information press releases and all public information intended for release was coordinated through the JIC to ensure a common message. Primary public notification is made through the use of sirens and EAS messages. Coordination of the siren activation was conducted through a conference call involving all risk counties and state agencies. EAS messages are generated and released from the SEOC. Follow on press releases were generated to provide more detailed information to the media. Siren activation is initiated by the state and controlled by the utility from the plant. In the event of a siren failure, backup route alerting would be performed by the Newberry County Sheriff's Office or county Fire and Rescue. Backup route alerting was successfully demonstrated on July 29, 2011 during out of sequence activities.

Public inquiries were fielded in the county EOC and accurate information was provided to callers through the public inquiry line. Public inquiry staff also maintained good situational awareness which enhanced their response to the public. All public inquiries were shared with the county PIO at the JIC and trends could be easily identified and misinformation addressed in a timely fashion. The ability to monitor the media was accomplished through the use of television, radio and internet news services in both the EOC and 911 center.

For this capability the following REP criteria were met: 5.a.1, 5.a.3 and 5.b.1.

**Citizen Evacuation and Shelter in Place:**

Newberry County School District personnel successfully discussed their ability to safeguard students, staff and faculty in the event of an incident involving VCS. Interviews were conducted with the Principals of Mid-Carolina High School and Mid-Carolina Middle School, the District Director of Student Services, Director of Transportation, and County Sheriff's Deputy. All representatives were conversant with their respective emergency plans and it was apparent that they were familiar with each other and had coordinated plans and responsibilities. The school district has sufficient buses to relocate students and staff in a timely manner and the host school is prepared to accept the relocating students and assist in their supervision and eventual release to parents/guardians. Staff and faculty have specific functions and these are addressed during regularly scheduled drills. All were knowledgeable and demonstrated a very professional demeanor.

For this capability the following REP criterion was met: 3.c.2.

**Emergency Public Safety and Security Response:**

This capability was demonstrated in two separate parts; implementation by out of sequence demonstration and management by the law enforcement representative in the EOC. Sheriff's deputies can be activated, mobilized and deployed to assigned TCPs in a timely manner. Command and control of the TCPs as well as resource coordination and impediment removal was completed from the EOC. TCPs can be established at the direction of the County Disaster Preparedness Director; however, for this exercise, they were established at the SAE ECL. Assigned deputies were knowledgeable in directing evacuees out of affected areas to the reception center as well as clearing impediments from the roadways. The deputies were also competent in the use of issued exposure control equipment. The assigned deputies also provided and maintained an effective law enforcement presence in maintaining perimeter control of the evacuated areas.

For this capability the following REP criteria were met: 1.a.1, 1.d.1, 1.e.1, 3.a.1, 3.b.1, 3.d.1 and 3.d.2.

**Hazardous Materials Response and Decontamination:**

The county successfully demonstrated their ability to manage emergency worker radiological exposure control by providing radiological safety briefings, implementing radiation exposure limits and issuing personal dosimetry to all emergency workers. Spread of radiological contamination was minimized by establishing Emergency Worker Decontamination Stations (EWD) which monitored and decontaminated emergency workers and their vehicles. EWD was demonstrated by the Newberry Fire Department. The Newberry County Chief of Fire Services gave an extremely informative safety and radiological briefing to the entire EWD team. He also reminded each worker as they were issued their dosimetry of their exposure limits, KI requirements and time requirements for reading and reporting their DRD results. All involved in the EWD team



exhibited outstanding team work, effective communication skills, a strong understanding of exposure control, and demonstrated excellent monitoring and decontamination techniques.

For this capability the following REP criteria were met: 1.a.1, 1.e.1, 3.a.1, 6.a.1 and 6.b.1

**Mass Care:**

Newberry County effectively demonstrated the capability to provide services and accommodations for evacuees arriving at the county reception center (RC). The RC for Newberry County was supported by the Newberry Fire Department, County Sheriff, County Department of Social Services and American Red Cross and is collocated with EWD. Processes that ensured evacuees had been monitored, decontaminated if applicable and found to be free of contamination prior to RC registration and entrance into the shelter was accomplished by the Newberry Fire Department. The Newberry County Chief of Fire Services gave an extremely informative safety and radiological briefing to the entire monitoring and decontamination team. He also reminded each worker as they were issued their dosimetry of their exposure limits, KI requirements and time requirements for reading and reporting their DRD results.

Evacuees are then required to fill out an ARC Shelter Registration Form and a Safe and Well Form. Feeding, clothing and medical needs for evacuees would be met by the ARC. In accordance with plans and procedures, if evacuees are ordered to ingest KI (as directed by DHEC Director, DHEC personnel would provide KI to the reception center and distribute it to the evacuees. All documentation of this distribution was the responsibility of DHEC.

All agencies involved in RCCC operations exhibited outstanding team work, effective communication skills, a strong understanding of exposure control, and demonstrated excellent monitoring and decontamination techniques.

For this capability the following REP criteria were met: 1.a.1, 1.e.1 and 6.c.1.

**3.2.3.4 Richland County**

**Emergency Operations Center Management:**

The Richland County Emergency Services Department Emergency Manager and his assigned EOC staff provided effective and timely direction, control and coordination of response operations. Notification and mobilization of personnel to staff the EOC was demonstrated with competency and efficiency, using a combination of cell phone texting and electronic mail messages, with manual calling as a backup.

Emergency communications between the Richland County, State and SCE&G operations centers used a dedicated line (the Electronic Switch System Exchange, or ESSX) for initial and significant status changes, and a dedicated Decision Line commercial

telephone circuit for jurisdictional coordination. Internal county communication capabilities were robust and have considerable redundancy.

The EOC Emergency Manager provided effective leadership and direction throughout the exercise. He maintained EOC staff situational awareness throughout the day by conducting periodic briefings and had each Service Chief give their status as a part of each briefing, as well as having the SCE&G Liaison, staff meteorologist and other key EOC staff brief significant actions and how it would affect county response to the emergency. The presence of senior county leadership throughout the entire exercise demonstrated their commitment to the protection of health and safety of the general public.

For this capability the following REP criteria were met: 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 and 3.d.2.

### **Emergency Public Information and Warning:**

Richland County contributed to the well-being of the community by contributing to the joint development and coordination of the emergency messages. Timely alert and dissemination of emergency information to the media and public would occur through a variety of methods such as sirens, EAS messages, and reverse 911. For this exercise only the simulated use of sirens and EAS messages were demonstrated. The county was prepared to do backup route alerting by law enforcement vehicles in the event of siren failure.

Backup route alert and notification of the public can be completed in a timely manner following the detection of a failure of the primary alert and notification system. Backup route alerting was demonstrated during OOS activities by the Richland County Emergency Management Coordinator and Sheriff's Department. Backup route alerting was authorized by the Emergency Management Coordinator from the EOC when siren activation failure was detected. The county used Reverse 911 to contact the residents of the affected area of the siren failure; in addition to the Reverse 911, backup route alerting would be physically performed by the Richland County Sheriff's Department with the county Fire Department in a backup role. Pre-scripted messages include all elements required by current FEMA REP guidance and there are no FEMA approved exception areas within the county.

The establishment of a public inquiry telephone line, staffed by personnel from the county Ombudsman's Office, provided professionally trained personnel who deal with the public on a daily basis as a routine part of their jobs. Their presence and performance consistently provided accurate information to the public, in addition to the press releases from the PIOs in both the EOC and the JIC.

For this capability the following REP criteria were met: 5.a.1, 5.a.3 and 5.b.1



**Emergency Public Safety and Security Response:**

This capability was demonstrated in two separate parts; out of sequence interview and management by the law enforcement representative in the EOC. Richland County Sheriff's Department deputies could be activated, mobilized and deployed to assigned TCPs in a timely manner. Command and control of the TCPs as well as resource coordination and impediment removal was completed from the EOC and relayed to personnel through area supervisors. TCPs were established at the SAE ECL. Assigned deputies were knowledgeable in directing evacuees out of affected areas to the reception center. The deputies were also competent in the use of issued exposure control equipment.

For this capability the following REP criteria were met: 1.a.1, 1.d.1, 1.e.1, 3.a.1, 3.b.1, 3.d.1 and 3.d.2.

**Hazardous Materials Response and Decontamination:**

Richland County Department of Emergency Services, Richland County Sheriff, Richland County Animal Care and Richland County Department of Social Services personnel effectively demonstrated the ability to assess radiological hazards through radiological monitoring and establishing contamination action levels. The Richland County Radiation Protection Officer gave extremely informative safety and radiological briefing to the entire monitoring and decontamination team. He also reminded each worker as they were issued their dosimetry of their exposure limits, KI requirements and time requirements for reading and reporting their DRD results. Spread of radiological contamination was minimized by establishing Emergency Worker Decontamination Stations (EWD) which monitored and decontaminated emergency workers and their vehicles, and all evacuees and their vehicles. All agencies involved in the monitoring and decontamination team exhibited exceptional team work, effective communication skills, a strong understanding of exposure control, and they demonstrated excellent monitoring and decontamination practices.

For this capability the following REP criteria were met: 1.a.1, 1.e.1, 3.a.1, 6.a.1 and 6.b.1

**Mass Care:**

The Richland County DSS and the Central South Chapter of the ARC demonstrated the capability to provide services and accommodations for evacuees arriving at the Dutch Forks High School reception center (RC). The registration desk was staffed with DSS and ARC personnel and had the ability to provide staffing for a provide 24 hour emergency response operation.

The registration process included ensuring that evacuees had been monitored and decontaminated. Evacuees were then required to fill out an ARC Shelter Registration Form and a Safe and Well Form. In accordance with Richland County emergency plans and procedures, evacuees were not provided shelter at this location. The County had established agreements with local hotels to provide shelter for evacuees and their pets. If

an evacuee opts for sheltering, their needs were assessed by DSS and the appropriate facility was assigned. Feeding, clothing and medical needs for evacuees would be met through in house and/or local resources such as restaurants, etc. Transportation, if needed, to the shelter would be provided by the Central Midlands Regional Transit Authority (CMRTA).

In accordance with plans and procedures, if evacuees were ordered to ingest KI (as directed by DHEC Director, DHEC personnel would provide KI to the reception center and distribute it to the evacuees prior to departure to hotels. All documentation of this distribution was the responsibility of DHEC.

All personnel were well trained and knowledgeable. All activities were performed in accordance with established plans, procedures and the extent of play agreement.

For this capability the following REP criteria were met: 1.a.1, 1.e.1 and 6.c.1.

## Section 4: Conclusion

Overall, the exercise was a success. Officials and representatives from the State of South Carolina; the risk counties of Fairfield, Lexington, Newberry and Richland; SCE&G as well as numerous volunteers participated in the exercise. The cooperation and teamwork of the participants was evident throughout all phases of the exercise. FEMA wishes to acknowledge the efforts of the many individuals who participated and made this exercise a success. Protecting the public health and safety is the full-time job of some of the exercise participants and an additional assigned responsibility for others. Still others have willingly sought this responsibility by volunteering to provide vital emergency services to their communities.

State and local emergency response organizations demonstrated knowledge of their emergency response plans and procedures and successfully implemented them.

During this exercise, FEMA identified three areas requiring corrective action (ARCA):

1. 061-11-1c1-A1; Emergency Operations Center Management: South Carolina Emergency Management Division (SCEMD). SCEMD is reviewing their procedures and will provide corrective action(s) relative to this ARCA to FEMA, Region IV by December 30, 2011.
2. 061-11-1e1-A2; Hazardous Materials Response and Decontamination: Fairfield County. Fairfield County successfully re-demonstrated the issuance PRDs to their emergency workers on September 27, 2011, thus, resolving this ARCA.
3. 061-11-6a1-A3; Hazardous Materials Response and Decontamination: Fairfield County. Fairfield County successfully re-demonstrated this criterion on September 27, 2011, thus, resolving this ARCA.

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## Appendix A: Exercise Timeline

Emergency Classification Level		Time Utility Declared	Time Notification was Received or Action Taken						
2011 VC Summer REP Exercise			SEOC	DHEC	JIC	Fairfield County	Lexington County	Newberry County	Richland County
Unusual Event		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alert		8:35	8:55	8:55	9:06	8:56	9:05	8:44	8:54
Site Area Emergency		10:11	10:20	10:20	10:14	10:19	10:18	10:16	10:19
General Emergency		11:38	11:58	11:58	11:39	11:54	11:49	11:55	11:41
Simulated Rad Release Began		11:34	11:58	11:58	11:54	11:54	11:49	11:55	11:41
Simulated Rad Release Ended		Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing
Facility Declared Operational		N/A	10:18	10:18	9:31	10:36	10:25	8:49	10:21
Declaration of State of Emergency: State		N/A	10:32	10:32	10:34	10:45	10:33	10:36	10:45
Local								10:36	10:44
Exercise Terminated		12:30	13:35	13:35	12:37	13:35	13:35	13:35	13:35
Early Precautionary Actions:									
Fairfield School Relocated		N/A	10:50	10:50	10:27	10:19	9:15	N/A	N/A
Lexington Early School Release (Optional)									
1st Protective Action Decision:									
Evacuate Zones: A0, E1, F1		N/A	10:47	10:47	10:47	10:47	10:47	10:47	10:47
Shelter Zones: E2, F2									
1st Siren Activation		N/A	11:05	11:05	11:05	11:05	11:05	11:05	11:05
1st EAS Message		N/A	11:10	11:10	11:10	11:10	11:10	11:10	11:10
2nd Protective Action Decision:									
Evacuate Zones: E2, F2 and Livestock Precautions		N/A	11:52	11:52	12:13	11:52	11:52	11:52	11:52
Shelter Zones:									
2nd Siren Activation		N/A	12:10	12:10	12:10	12:10	12:10	12:10	12:10
2nd EAS Message		N/A	12:15	12:15	12:15	12:15	12:15	12:15	12:15
3rd Protective Action Decision:									
Evacuate Zones:		N/A	12:55	12:55	N/A	12:55	12:55	12:55	12:55
Shelter Zones: C1, D1, D2									
3rd Siren Activation		N/A	13:07	13:07	N/A	13:07	13:07	13:07	13:07
3rd EAS Message		N/A	13:10	13:10	N/A	13:10	13:10	13:10	13:10
KI Decision:									
Emergency Workers: For evacuated zones only		N/A	12:55	12:55	N/A	12:55	12:55	12:55	12:55
General Public: For evacuated zones only									

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# Homeland Security Exercise and Evaluation Program (HSEEP)

AAR

2011 VC Summer REP Exercise

## Appendix B: Exercise Evaluators and Assignments

Location	Evaluation Team	Capability & Activity
<b>Joint Operations</b>		
EOF	B. Trojanowski (NRC)	EOC Management
JIC	R. Spence (FEMA) T. Hegele (ICF)	Emergency Public Information & Warning
<b>State of South Carolina</b>		
SEOC	O. Spencer (FEMA) R. Smith (ICF) H. Christiansen (ICF)	EOC Management
Dose Assessment	B. McRee (ICF)	HAZMAT Response & Decontamination
TCPs	J. Ackermann (FEMA)	Emergency Public Safety & Security
EAS (WCOS)	J. Fill (FEMA)	Emergency Public Information & Warning
<b>Fairfield County</b>		
EOC	R. Shaw (FEMA) M. Bradley (FEMA)	EOC Management Emergency Public Information & Warning
Protective Actions for Schools	J. Ackermann (FEMA)	Citizen Evacuation & Shelter In Place
TCPs	J. Ackermann (FEMA)	Emergency Public Safety & Security Response
Backup Route Alerting	J. Ackermann (FEMA)	Emergency Public Information & Warnings
Emergency Worker & Vehicle Decon	J. Harworth (FEMA) W. Cushman (FEMA) R. Spence (FEMA)	HAZMAT Response & Decontamination
Reception & Congregate Care	R. Shaw (FEMA) W. Cushman (FEMA) R. Spence (FEMA)	HAZMAT Response & Decontamination Mass Care
<b>Lexington County</b>		
EOC	J. Harworth (FEMA) R. Nash (FEMA) M. Swearingen (ICF)	EOC Management Emergency Public Information & Warning
Protective Actions for Schools	R. Shaw (FEMA) R. Nash (FEMA)	Citizen Evacuation & Shelter In Place Citizen Evacuation & Shelter In Place
TCPs	J. Ackermann (FEMA)	Emergency Public Safety & Security Response
Backup Route Alerting	J. Ackermann (FEMA)	Emergency Public Information & Warnings
Emergency Worker & Vehicle Decon	J. Harworth (FEMA) R. Nash (FEMA) M. Dolder (FEMA)	HAZMAT Response & Decontamination

# Homeland Security Exercise and Evaluation Program (HSEEP)

AAR

2011 VC Summer REP Exercise

Location	Evaluation Team	Capability & Activity
<b>Joint Operations</b>		
	W. Cushman (FEMA) R. Spence (FEMA)	
Reception & Congregate Care	R. Shaw (FEMA) R. Nash (FEMA)	HAZMAT Response & Decontamination Mass Care
<b>Newberry County</b>		
EOC	J. Ackermann (FEMA) L. Lewis (FEMA) J. Sandberg (FEMA)	EOC Management Emergency Public Information & Warning
Protective Actions for Schools	R. Shaw (FEMA) R. Nash (FEMA)	Citizen Evacuation & Shelter In Place Citizen Evacuation & Shelter In Place
TCPs	J. Ackermann (FEMA)	Emergency Public Safety & Security Response
Backup Route Alerting	J. Ackermann (FEMA)	Emergency Public Information & Warnings
Emergency Worker & Vehicle Decon	R. Spence (FEMA) R. Nash (FEMA)	HAZMAT Response & Decontamination
Reception & Congregate Care	W. Cushman (FEMA) R. Shaw (FEMA)	HAZMAT Response & Decontamination Mass Care
<b>Richland County</b>		
EOC	W. Cushman (FEMA) M. Dolder (FEMA) B. Larrabee (ICF)	EOC Management Emergency Public Information & Warning
TCPs	J. Ackermann (FEMA)	Emergency Public Safety & Security Response
Backup Route Alerting	J. Ackermann (FEMA)	Emergency Public Information & Warnings
Emergency Worker & Vehicle Decon	W. Cushman (FEMA) M. Dolder (FEMA) R. Spence (FEMA) J. Harworth (FEMA)	HAZMAT Response & Decontamination
Reception & Congregate Care	R. Shaw (FEMA) R. Nash (FEMA)	HAZMAT Response & Decontamination Mass Care



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## Appendix C: Extent of Play Agreement

Virgil C. Summer Nuclear Station Radiological Emergency Preparedness Exercise  
September 28, 2011

### 1. Emergency Operations Management

#### *Sub-element 1.a. – Mobilization*

**Criterion 1.a.1: Offsite response organizations (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 pre-positioned in the area and will respond as the scenario dictates. Alert rosters will be provided to FEMA evaluators. A discussion on procedures will be conducted with State and County Warning Point personnel.

#### *Sub-element 1.b. – Facilities*

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

The Fairfield County Emergency Operations Center (EOC) is a new facility and will be evaluated to establish a baseline for this exercise evaluation criterion on August 31 at 9:00 A.M. The EOC is located at 100 Tidewater Rd., Winnsboro, SC. *This will be evaluated only if Fairfield's new EOC is operational.*

#### *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)**

Direction and Control will be at the State Emergency Operations Center (SEOC). County Direction and Control will take place at the Fairfield, Lexington, Newberry and Richland County's EOC. State Emergency Response Team (SERT) participants include the Emergency Management Division (EMD); 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); 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, FEMA Region IV, Georgia, North Carolina and non-playing South Carolina state agencies. All simulated telephone calls will be made by calling the simulation cell (SIMCELL). A FEMA evaluator will be given access to the SIMCELL as needed.

#### *Sub-element 1.d. – Communications Equipment*

**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 Electronic Switch System Exchange (ESSX) is the primary means of communication to notify OROs. Backup to the ESSX are commercial telephone lines, satellite telephone and/or other methods of communication.

WebEOC software will be utilized at Fairfield, Lexington, Newberry and Richland county EOCs, the SEOC and V. C. Summer Nuclear Station during the exercise. FEMA evaluators will be given access to state and county WebEOC during the exercise (FEMA will provide their own laptops). Copies of state and county WebEOC logs and any attachments will be provided to FEMA evaluators upon conclusion.

*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.7, 10; J.10.a, b, e, J.11; K.3.a)**

Potassium Iodide for emergency workers will be simulated by candy or other means (empty envelope marked KI). A supply of KI for emergency workers is stored at the local EOC and/or Region 3 Health Departments and at DHEC's Public Health Emergency Pharmacy in Columbia, S.C.

Quantities of KI for emergency workers, institutionalized individuals and public will be confirmed at the local EOC (ESF 8) and/or the county Public Health Office by documentation of the current inventory during scheduled staff assistance visits (SAVs).

All state/county radiation detection equipment will be inspected, and operationally checked before each use. State/county radiation detection equipment will be calibrated or leak tested in accordance with existing plans by the South Carolina Emergency Management Division Radiological Lab or authorized laboratory and verified during scheduled SAVs and/or out-of-sequence (OOS) activities.

At locations where traffic control personnel are deployed, the availability of appropriate equipment (e.g. vehicles, barriers, traffic cones and signs, etc.) will be discussed by law enforcement personnel.

Staff Assistance Visits (SAV), conducted by FEMA, will take place as follows:

Fairfield County at their EOC in Winnsboro, SC on August 31, 2011 at 9:00 A.M.

Lexington County at their EOC in Lexington, SC on June 30, 2011 at 2:00 P.M.

Newberry County at their EOC in Newberry, SC on June 29, 2011 at 9:00 A.M.

Richland County at their EOC in Columbia, SC on June 29, 2011 at 9:00 A.M.

**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)**

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 staff at county EOCs and the SEOC will discuss the processes with evaluators during in-sequence and/or OOS activities.

*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 and Supplement 3)**

Protective action recommendations will be based upon data received from the licensee, DHEC, SCEMD and Risk Counties, independent dose assessments and simulated field monitoring data input. Dose assessment will take place at the 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.f, m)**

The Governor or designee will demonstrate the ability to make appropriate PADs based on recommendations from SCEMD, DHEC and Risk Counties. 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.

*Sub-element 2.c. – Protective Action Decisions Consideration for the 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)**

Fairfield County, Lexington County, Newberry and Richland County will discuss this criterion with evaluators. A list of potential special population citizens will be provided to evaluators but not removed from the EOCs.

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**

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**appropriate exposure record or chart. (NUREG-0654, K.3.a, b)**

Emergency workers or emergency worker teams will use Self Reading Dosimeters (SRDs) and simulated Permanent Record Dosimeters (PRDs) or Thermoluminescent Dosimeters (TLDs) to monitor and control their radiation exposure. Emergency workers in low exposure rate areas will use SRDs. Dosimeters are distributed through County EOCs. Each county has an adequate inventory to support first-shift personnel. Supplemental dosimeters are provided in accordance with the South Carolina Dosimetry Redistribution Standard Operating Procedures and Matrix, after discussion and consideration at the SEOC. Department of Public Safety, Highway Patrol and the Department of Health and Environmental Control (DHEC) maintain and distribute their own SRDs. Supplemental dosimeters will not be distributed or transported. Emergency workers will be interviewed to determine their knowledge of radiation exposure limits. Personal exposure forms will be completed by emergency workers during OOS activities and provided to FEMA evaluators upon conclusion.

*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, J.10.e)**

KI is distributed to emergency workers prior to their being dispatched. KI is taken by emergency workers on order by the DHEC Commissioner or designee. Record keeping will be discussed at the county EOCs during scheduled SAVs.

*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)**

Fairfield County, Lexington County, Newberry County and Richland County will discuss the ability and resources to implement appropriate protective actions for special population groups. A list of people/facilities with special transportation needs will be provided to evaluators but not removed from the EOCs. Evacuation assistance will be discussed at the county EOCs during in-sequence and/or OOS activities.

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

Lexington County will discuss school protective actions by OOS interviews with key staff members from each school and with the transportation supervisor on June 28, 2011 at 2:00 P.M. FEMA evaluators will meet with the Lexington County Director/designee, and key school officials at Chapin High School. Lexington County EPZ schools to be evaluated are: Chapin Middle School and

Chapin Elementary School.

Newberry County will discuss school protective actions by OOS interviews with key school staff members from each school and the transportation supervisor from each school on June 29 at 10:15 and 11:00 A.M., respectively. FEMA evaluators will meet with Newberry County Director/designee, key staff members, and the transportation supervisor at Mid Carolina High School and Mid Carolina Middle School.

Newberry County EPZ Schools to be evaluated are: Mid-Carolina High School and Mid-Carolina Middle School.

Fairfield County will discuss school protective actions by OOS interviews with key school staff members and the transportation supervisor on August 31, 2011 at 11:00 A.M. FEMA evaluators will meet with Fairfield County Director/designee, key staff members, and the transportation supervisor at Kelly Miller Elementary School.

Fairfield County EPZ School to be evaluated is: Kelly Miller Elementary School.

*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)**

Traffic Control Points (TCPs) are pre-determined. The South Carolina Highway Patrol will discuss Traffic Control at Fairfield County EOC on August 31, 2011 at 9:00 A.M. State TCP to be evaluated is:

ST-02 – SC 215/SC 213

County/Local Law Enforcement personnel will discuss county/local TCP operations at the EOCs. ESF-16 will discuss overall TCP management at the SEOC during the exercise on September 28, 2011.

Newberry County Local Law Enforcement Personnel will be available on June 29, 2011 at 4:00 P.M. to demonstrate TCP operations in conjunction with other OOS activities to include emergency worker decontamination (EW Decon) and reception congregate care center (RCCC). The TCP to be evaluated by demonstration is NTCP4 (SC 34/Broad River Rd.)

County TCPs to be evaluated by discussion are:

Fairfield (6:00 P.M. 8/31/11) – FTCP1 (Newberry Rd. /SC 215)

Lexington (9:00 A.M. 6/30/11) – LTCP4 (Amicks Ferry Rd. /Sandbar Rd.) and LTCP6 (US 176/Skylark Ln.)

Newberry (4:00 P.M. 6/29/11) - NTCP7 (US 176/Holy Trinity Church Rd.)

Richland (9:00 A.M. 6/28/11) - RTCP5 (Broad River Rd. /West Shady Grove Rd.) and RTCP6 (Old Tamah/Koon Rd.)

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**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 State Highway Patrol personnel at Fairfield County EOC on August 31, 2011 at 9:00 A.M.

County/Local Law Enforcement personnel will discuss actions to identify and remove impediments to evacuation at the county EOCs. ESF-16 will discuss management of these operations at the SEOC during the exercise on September 28, 2011.

4. Plume Phase Field Measurements and Analysis

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

**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)**

DHEC field teams will not be playing; however, Direction and Control of the dose assessment process will take place at the SEOC by DHEC. Dose assessment management will be evaluated by discussion during the exercise on September 28, 2011.

5. Emergency Notification and Public Information

*Sub-element 5.a. – Activation of 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.IV.D and NUREG-0654, E.5, 6, 7)**

The State will coordinate PADs with the Chief County elected officials or designees. [The licensee will coordinate with OROs and simulate the sounding of the siren system in accordance with response plans and procedures. The Emergency Alert System (EAS) procedures will be demonstrated up to the point of message broadcast. No EAS message broadcast will occur.] Affected Risk Counties will be notified of the need for possible shelter activation.

One test EAS message will be prepared and transmitted to the Local Primary (LP-1) station (WCOS-FM, Columbia). The LP-1 station personnel will then discuss the broadcast process with a FEMA evaluator. A copy of the test EAS message will be provided to evaluators at the SEOC and LP-1 station. Any additional EAS messages and/or follow-on news releases will be faxed to the SIMCELL.

The LP-1 Station will have staff available for interview on September 28, 2011. Any activation of the sirens and EAS broadcast will be simulated.



**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)** Lexington County, Newberry County and Richland County will discuss back-up route alerting during the exercise. Fairfield County will demonstrate during OOS activities.

*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)**

The State, Fairfield County, Lexington County, Newberry County and Richland County will demonstrate the ability to coordinate the formulation and dissemination of accurate information and instructions to the news media at the Joint Information Center (JIC). Public inquiry for the State will be demonstrated at the JIC. Public inquiry for Fairfield, Lexington, Newberry and Richland Counties will be demonstrated in accordance with plans. Public inquiry personnel will provide a call log to the FEMA Evaluator. Copies of public inquiry injects will be provided to FEMA prior to the exercise.

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; J.12; K.5.a)**

Reception Centers will be demonstrated OOS. At least six people will be monitored and registered. Personnel decontamination will be demonstrated via walk-through and discussion. **Water will not be used in evacuee decontamination.** All necessary supplies will be on-hand. Walkways will not be entirely covered with barrier material; however, some markings will be used to aid in directing evacuees. Demonstration will include the necessary portable portal monitors and monitoring teams required to monitor 20% of the population allocated to the facility within 12 hours. The FEMA evaluator will develop a monitoring productivity rate. Fairfield, Lexington, Newberry and Richland counties will demonstrate vehicle monitoring on two vehicles, one of which will be contaminated, and discuss vehicle decontamination in accordance with local SOPs.

Reception Centers to be evaluated are:

Fairfield County- White Oak Baptist Conference Center will be evaluated on August 31, 2011 at 6:00 P.M.

Lexington County- Crossroads Middle School will be evaluated on June 30, 2011 at 9:00 A.M.

Newberry County- Newberry High School will be evaluated on June 29, 2011 at 4:00 P.M.

Richland County- Dutch Fork High School will be evaluated on June 28, 2011 at 9:00 A.M.

*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 OOS. Two emergency workers will be monitored. Personnel decontamination will be demonstrated via walk-thru and discussion. **Water will not be used in demonstrating personnel decontamination.** One emergency vehicle will be monitored and decontaminated in accordance with local SOPs. **Water will be used on emergency vehicles.**

The Fairfield County Emergency Worker Decontamination Facility (White Oak Baptist Conference Center) will be evaluated on August 31, 2011 at 6:00 P.M.

The Lexington County Emergency Worker Decontamination Facility (Crossroads Middle School) will be evaluated on June 30, 2011 at 9:00 A.M.

The Newberry County Emergency Worker Decontamination Facility (Newberry Career Center) will be evaluated on June 29, 2011 at 4:00 P.M.

The Richland County Emergency Worker Decontamination Facility (Dutch Fork High School) will be evaluated on June 28, 2011 at 9:00 A.M.

*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)**

County shelters will be demonstrated OOS and concurrently with Evaluation Area 6.a, above. Procedures assuring that only non-contaminated persons enter shelters will 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)**

Newberry Memorial Hospital and Newberry County EMS will demonstrate the ability to transport, monitor, decontaminate and provide medical services to a contaminated injured individual in accordance with plans and procedures. The MS-1 drill will be conducted in conjunction with TCP operations, EW decon, and RCCC on June 29, 2011 at 4:00 P.M.

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## Appendix D: Scenario

### Scenario Summary

The plant is operating at 100% power, beginning of life, equilibrium xenon and samarium. It is an "A2" Train Maintenance Week. C-Charging Pump has been tagged out for Maintenance, due to a broken gear box. The pump is expected to be returned to service in 2 days. Wind direction is from 42 degrees, at 5.1 mph. Stability Class is E. The Operational Plan is to maintain 100% Power.

At T=5, the B-Charging Pump trips due to an over-current condition. The Crew should implement AOP-102.2 for the loss of charging. This will require Operations to contact Mechanical and Electrical Maintenance to investigate. They should evaluate T.S. 3/4.5.2, Action "A" for the loss of two independent trains of ECCS.

At T=20, a pressure spike on the Main Transformer causes a lockout of the Main Transformer. The BOP busses swap to their alternate feed, and the reactor will trip on OTDT. The reactor will fail to trip from the automatic trip signal. The crew should recognize the failure of the reactor to trip, and trip it manually. The RO Reactor Trip Switch will not work, but the BOP will be successful in tripping the reactor. Depending on their response, the Crew may or may not notice the failure of the RO Reactor Trip Switch to trip the reactor.

Also at T=20, the feed water isolation signal will fail to initiate. Rod H-10 will not completely insert into the core. Increased cooling causes the plant to "SI" on low Pressurizer pressure. The Crew should implement EOP-1.0 with eventual transition to EOP-1.2.

Within 15 minutes of the indications, the Shift Supervisor / Interim Emergency Director (SS/IED) should declare an Alert, based on SA2.1: Automatic trip was not successful after any RTS set point is exceeded, and manual actions taken at the Reactor Control Consoles successfully shutdown the Reactor as indicated by Reactor power <5%. The SS/IED initiates EPP-001.2 Alert checklist; announcing the emergency to the site and directing the Shift Communicator to activate the beepers per EPP-002. The SS/IED completes and approves the Emergency Notification Form (EPP-002 Att.II) and provides it to the Shift Communicator to notify State and local agencies within 15 minutes of the emergency declaration. Also, the Communicator will notify the NRC using the ENF form (EPP-002 Att. II) as soon as possible after State and local notifications but within 1 hour of emergency declaration. ERDS, aligned to the Simulator Control Room for this exercise, will be activated to transmit data to the NRC.

The SS/IED will turn over to the Emergency Director (ED) when the Technical Support Center (TSC) is manned. The Emergency Response Organization (ERO) will respond to their respective ERO facilities and activate the Operation Support Center (OSC) and TSC with 60 minutes of the declaration of the Alert.

At T=45, Wind direction and speed change abruptly from its original 42 degrees: now from 97 degrees, at 7.2 mph.

At T=50, RM-L1 begins to slowly increase over 10 minutes. It will eventually reach a value of 350  $\mu\text{Ci/gm}$  DEI. The Crew should take appropriate actions per ARP-642 1-5, 1-6, 4-3, 4-4. This will entail contacting Chemistry to take a RCS sample for activity, and Health Physics for a radiological survey.

The Emergency Operations Facility (EOF) will be manned and activated in accordance with EPP-051 at approximately T=55. The Offsite Emergency Coordinator (OEC) will receive a briefing from the ED.

At some point within this time frame, Chemistry may call the TSC or Control Room to verify that valves SVX-9364B and SVX-9365B are in "automatic." Locally, SVX-9365B (*the valve outside containment*) closes, but SVX-9364B (*inside containment*) will NOT close. The NROATC would likely attempt to close SVX-9364B; but it will NOT close.

At approximately T=85, A 2,000 gpm Reactor Coolant leak on C-Cold Leg is ramped in over a 5-minute time span. The Crew should implement AOP-101.1. They should use EOP-1.2 Reference page to decide to manually align pumps and valves, and transition to EOP-2.0 with eventual transition to EOP-2.1 and EOP-2.2. At approximately T=100, the ED should declare a Site Area Emergency, based on FS1.1: Loss or potential loss of any two barriers. This is based on: (1) loss of the fuel clad barrier based on Dose Equivalent I-131 coolant activity > 300  $\mu\text{Ci/gm}$ ; and (2) loss of the RCS barrier based on RCS leak rate > available make-up capacity as indicated by a loss of RCS subcooling. The ERO will implement EPP-001.3 Site Area Emergency and EPP-002 for notification to the State and counties of the escalation. The communicator shall request permission to activate the Early Warning Siren System.

At approximately T=195, a break in the B-RCS sample line will occur in the AB-412 West Penetration. The Control Room should note an increase in the floor drain tank level, local leak rate panel alarm, and increased plant radiation levels, and should send an Auxiliary Operator to investigate.

Once it is determined where the break is occurring, the ED should declare a General Emergency, based on FG1.1: Loss of any two barriers, and loss or potential loss of third barrier. This is based on the loss of the fuel clad, RCS, and (due to the location of the leak in the AB) failure of all valves in any one line to close, and a direct downstream pathway to the environment exists after containment isolation signal.

The ERO initiates EPP-001.4 GE checklist, announcing the emergency and a site evacuation to the site, and directing the communicator to request EWSS activation per EPP-021. PARs for the General Emergency will be developed using Midas, and in accordance with EPP-001.4 and EPP-005:

- Evacuate: A-0, E-1, F-1
- Shelter: A-1, A-2, B-1, B-2, C-1, C-2, D-1, D-2, E-2, F-2

The drill will be terminated when the objectives are satisfied.

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**Appendix E: Schedule of Corrective Actions**

Capability	Area for Improvement	Recommendation	Corrective Action Description	Primary Responsible Agency	Agency POC	Start Completion Date
Emergency Public Info & Warning	OROs provide accurate emergency information and instructions to the public and the news media 061-11-5b1-A1	1. Implement measures to ensure compliance with established procedures to ensure only accurate and appropriate information is disseminated.		SCEMD		
		2. Establish a method or system to ensure that decisions made on the conference call are understood by all parties and before releasing the decisions there is final agreement on the decisions.		SCEMD		
Hazardous Materials Response & Decon	Issue PRDs to EWs	1. All personnel involved should receive additional training in radiological exposure control procedures.	All personnel received additional radiological training	Fairfield County	EMD / RO	September 27, 2011 Successfully redemonstrated
		2. The County should develop a standardized "Emergency Worker Kit."	Standardized kits created and used in redemonstration	Fairfield County	EMD / RO	September 27, 2011 Successfully redemonstrated
Hazardous Materials Response & Decon	Personnel knowledge of duties and responsibilities concerning monitoring and decon of personnel and vehicles	1. All personnel involved should receive additional classroom training and on the job training to insure they have the ability to effectively perform their tasks.	Personnel receive additional training	Fairfield County	EMD / RO	September 27, 2011 Successfully redemonstrated
		2. Have the same personnel re-perform these tasks under evaluation.	Personnel receive additional training	Fairfield County	EMD / RO	September 27, 2011 Successfully redemonstrated
		3. Review the flow path and facilities to insure they are appropriate and functional.	Flow path reconfigured to make better usage of area	Fairfield County	EMD / RO	September 27, 2011 Successfully redemonstrated

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**Appendix F: Acronyms**

Acronym	Meaning
AAC	After Action Conference
AAR	After Action Report
ARC	American Red Cross
ARCA	Area Requiring Corrective Action
ARES	Amateur Radio for Emergency Services
CFR	Code of Federal Regulations
DEPD	Director Emergency Preparedness Division
DHS	Department of Homeland Security
DNR	Department of Natural Resources
DOT	Department of Transportation
DRD	Direct Reading Dosimeter
DSS	Department of Social Services
EAL	Emergency Action Level
EAS	Emergency Alert System
ECL	Emergency Classification Level
EEG	Exercise Evaluation Guide
EMA	Emergency Management Agency
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EOPA	Extent of Play Agreement
EMD	Emergency Management Director
EPA	Environmental Protection Agency
EPZ	Emergency Planning Zone
ESF	Emergency Support Function
EW	Emergency Worker
EWD	Emergency Worker Decontamination
FEMA	Federal Emergency Management Agency
FMT	Field Monitoring Team
FOUO	For Official Use Only
GE	General Emergency
HAZMAT	Hazardous Materials
HSEEP	Homeland Security Exercise and Evaluation Program
HQ	Headquarters

# Homeland Security Exercise and Evaluation Program (HSEEP)

AAR

2011 V.C. Summer REP Exercise

Acronym	Meaning
IC	Incident Commander
IP	Improvement Plan
IPZ	Ingestion Pathway Zone
JIC	Joint Information Center
KI	Potassium Iodide
LP-1	Local Primary -1
MOU	Memorandum of Understanding
mR	milliroentgen
mR/h	milliroentgen per hour
NGO	Non-Governmental Organization
NOUE	Notification of Unusual Event
NRC	Nuclear Regulatory Commission
NWS	National Weather Service
OOS	Out-of-Sequence
ORO	Offsite Response Organization
PAD	Protective Action Decision
PAG	Protective Action Guide
PAR	Protective Action Recommendation
PIO	Public Information Officer
PPE	Personal Protective Equipment
PRD	Permanent Record Dosimetry
R	Roentgen
RAC	Regional Assistance Committee
RACES	Radio Amateur Civil Emergency Service
REA	Radioactive Emergency Area
REM	Roentgen Equivalent Man
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
R/h	Roentgen(s) per hour
RO	Radiological Officer
SAE	Site Area Emergency
SEOC	State Emergency Operations Center
SCHP	South Carolina Highway Patrol
SIMCELL	Simulation Cell
SIP	Shelter-in-Place
SOG	Standard Operating Guide

## Homeland Security Exercise and Evaluation Program (HSEEP)

AAR

2011 V.C. Summer REP Exercise

Acronym	Meaning
SOP	Standard Operating Procedure
SRD	Self-Reading Dosimeter
SSS	Selective Signaling System
TCL	Target Capabilities List
TCP	Traffic Control Point
TLD	Thermoluminescent dosimeter
UTL	Universal Task List
VCS	V.C. Summer Nuclear Station
VFD	Volunteer Fire Department

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