



**FEMA**

April 26, 2012

Victor M. McCree  
Regional Administrator - RII  
State and Local Government Affairs  
US Nuclear Regulatory Commission  
One Marquis Tower  
245 Peachtree Center Avenue, Suite 1200  
Atlanta, Georgia 30303

Dear Mr. McCree:

Enclosed is a copy of the final exercise report for the November 15, 2011 partial participation, plume exposure pathway exercise of the offsite radiological emergency response plans site-specific to the H. B. Robinson Steam Electric Plant. This report addresses the evaluation of the plans and preparedness for the State of South Carolina and Chesterfield, Darlington and Lee Counties within the 10-mile Emergency Planning Zone (EPZ) and Florence County, a host county. The Federal Emergency Management Agency Region IV staff prepared the final exercise report. Copies of this report will be forwarded to the State of South Carolina, FEMA Headquarters and NRC Headquarters by my staff.

State and County personnel, as well as, numerous volunteers and elected officials participated in this exercise. The State of South Carolina and the counties have dedicated emergency response staff who are serious and professional in executing their duties.

No Deficiencies were identified. However, one Area Requiring Corrective Actions (ARCA) was identified. The ARCA involved emergency workers at the Lee County vehicle monitoring and decontamination center improperly reading and operating the radiological survey meter. Ad hoc training was provided to the emergency workers and they were able to demonstrate the proper techniques thereby, successfully correcting the ARCA.

The three ARCAs identified during the 2009 H.B. Robinson exercise have been resolved. The resolved ARCAs are as follows: South Carolina Emergency Management Division emergency workers dispatched to the Emergency Operations Facility (EOF) were not issued dosimetry prior to entering the 10-mile EPZ; neither the Department of Natural Resources (DNR) nor the Darlington County Sheriff Department have in place procedures that assure DNR obtained 800 MHz radios before deployment to their assignment for Lake Clearing; and, the Chesterfield County Sheriff Deputy did not receive a thorough radiological briefing prior to deployment, this ARCA was previously re-demonstrated. An ARCA identified during the 2010 Oconee exercise was also resolved during this exercise. That ARCA was issued to the State for their coordination with the risk counties and the issuance of emergency information/instructions to the public via the prompt alert and notification system was not always conducted with a sense of urgency and without undue delay.

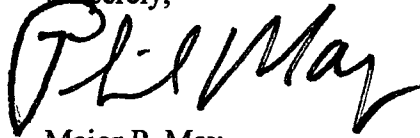
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Based on the results of the November 15, 2011, exercise and FEMA's review of the State's Annual Letters of Certification for 2009 and 2010, the offsite radiological emergency response plans for the State of South Carolina and the affected local jurisdictions, site-specific to the H. B. Robinson Steam Electric Plant can be implemented and are adequate to provide a reasonable assurance that appropriate measures can be taken offsite to protect the health and safety of the public in the event of a radiological emergency at the site. The Title 44 CFR, Part 350, approval of the State of South Carolina's offsite radiological emergency response plans and preparedness site-specific to the H. B. Robinson Steam Electric Plant, granted on December 29, 1981, will remain in effect.

Should you have any questions, please contact Conrad Burnside at 770/220-5486.

Sincerely,

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

Major P. May  
Regional Administrator

Enclosure

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Washington, D. C. 20555-0001



**AFTER ACTION REPORT  
H.B. Robinson Steam Electric Plant  
(HBRSEP)  
REP Program Exercise**

**[FINAL]**

**November 15, 2011**

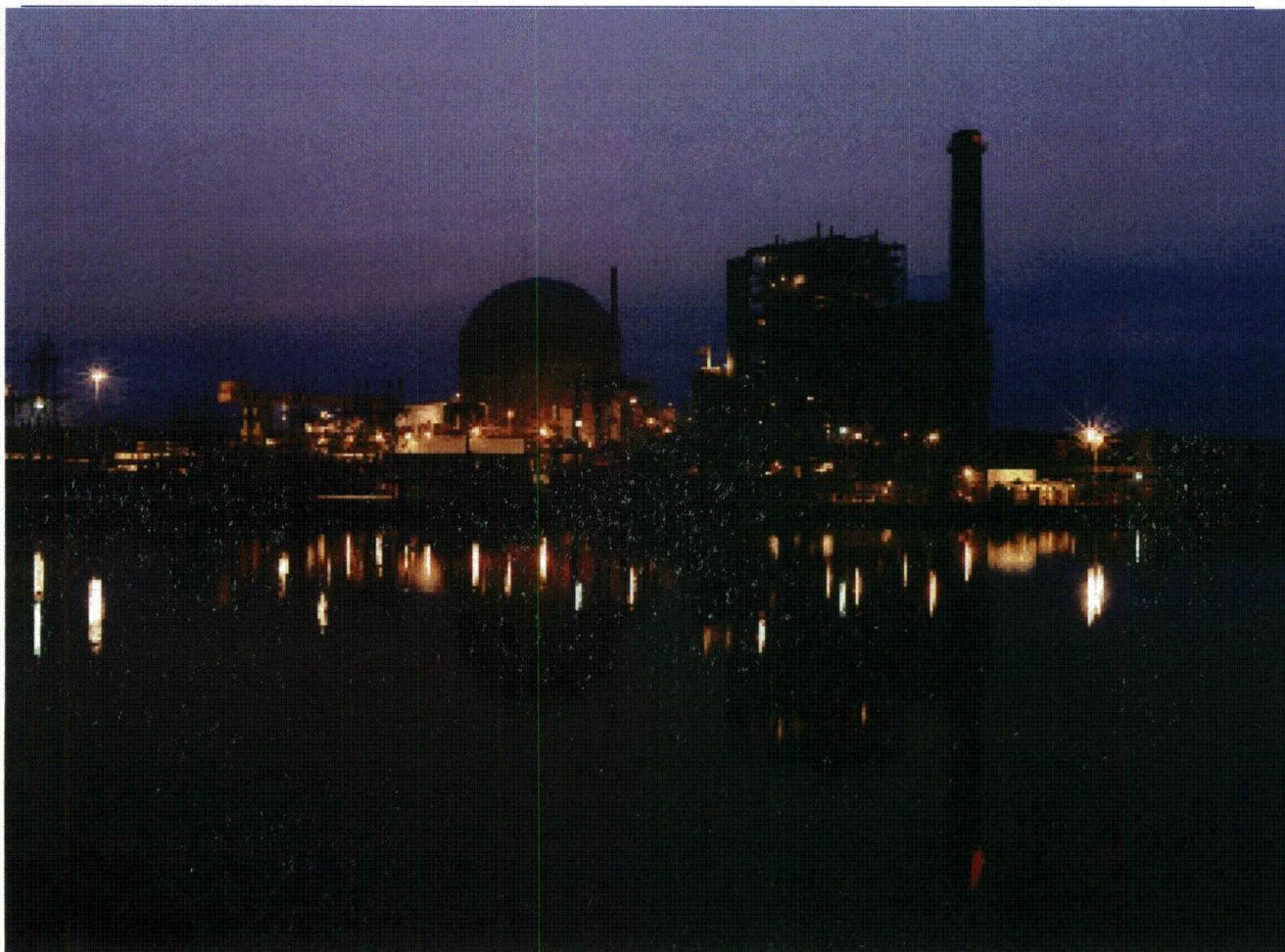
**Radiological Emergency Preparedness Program (REPP)**



**FEMA**

*Published April 26, 2012*





**AFTER ACTION REPORT  
H.B. Robinson Steam Electric Plant  
(HBRSEP)  
REP Program Exercise**

**[FINAL]**

**November 15, 2011**

**Radiological Emergency Preparedness Program (REPP)**



**FEMA**

*Published April 26, 2012*

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2011 HBRSEP REP Exercise

2011 HBRSEP REP Exercise

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## Administrative Handling Instructions

This After Action Report (AAR) for the 2011 H.B. Robinson Steam Electric Plant (HBRSEP) Radiological Emergency Preparedness, Full Participation Plume Phase Emergency Planning Zone (EPZ) Exercise is considered a public document.

### Points of Contact:

Federal	State	Utility
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## Executive Summary

On November 15, 2011 the Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA) Region IV Radiological Emergency Preparedness (REP) Program staff evaluated a plume exposure pathway exercise in the emergency planning zone (EPZ) for the H. B. Robinson Steam Electric Plant (HBRSEP). HBRSEP is located west of the Lake Robinson Dam in western Darlington County and is owned and operated by Progress Energy. The HBRSEP EPZ is divided into 11 emergency response planning zones. The 10-mile EPZ encompasses parts of Chesterfield, Darlington and Lee Counties with a population of approximately 32,550.

FEMA's overall objective of the exercise was to assess the level of State and local preparedness in responding to a radiological emergency at HBRSEP. 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 May 19, 2009. The qualifying emergency preparedness exercise was conducted March 11 and 12, 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 HBRSEP REP Exercise were as follows:

- **Objective 1:** Demonstrate the ability to provide Emergency Operations Center management including Direction and Control through the Counties' and State 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/Emergency Alert System (EAS) 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 one Area Requiring Corrective Action (ARCA) during the exercise. The ARCA concerned the operation of the Lee County Monitoring and Decontamination Center where the staff responsible for radiological monitoring were unfamiliar with equipment set-up, operational check and use. Ad hoc training was conducted for the staff and they successfully demonstrated the associated activities thereby correcting the ARCA.

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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 H. B. Robinson Steam Electric Plant REP Exercise

**Type of Exercise**

Full Scale Exercise

**Exercise Date**

November 15, 2011

**Exercise Off Scenario Date**

November 16, 2011 (MSD)

**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, Full Participation Plume Phase EPZ



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## 1.2 Participating Organizations

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

<b>State of South Carolina</b>
Office of the Adjutant General, Emergency Management Division
State Law Enforcement Division
Department of Health & Environmental Control Bureau of Land Waste Management and Health Services
Department of Mental Health
Department of Natural Resources, Law Enforcement
Department of Public Safety, Highway Patrol, and Bureau of Public Safety
Department of Social Services
<b>Risk Jurisdictions</b>
Chesterfield County, South Carolina
Darlington County, South Carolina
Lee County, South Carolina
<b>Host Jurisdiction</b>
Florence County, South Carolina
<b>Non-Governmental Organizations</b>
Amateur Radio Emergency Services (ARES)/Radio Amateur Civil Emergency Services (RACES)
American Red Cross (ARC)
The Salvation Army
<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 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 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 HBRSEP to FEMA by the State of South Carolina occurred on February 13, 1981. Formal approval of the State of South Carolina's RERP was granted on December 29, 1981, under 44 CFR 350.

A REP exercise was evaluated on November 15, 2011, and included an off scenario evaluation conducted on November 16, 2011.

### 2.2 FEMA Exercise Objectives and Capabilities

The objectives for the 2011 HBRSEP 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.

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**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.
- **Triage and Pre-Hospital Treatment:** Is the capability to appropriately dispatch EMS resources; to provide feasible, suitable, and medically acceptable pre-hospital triage and treatment of patients; to provide transport as well as medical care en-route to an appropriate receiving facility; and to track patients to a treatment facility.

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



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- 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)  
Capability - Triage and Pre-Hospital Treatment
- 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 November 15-16, 2011 full participation plume phase exercise and off-scenario 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:**

South Carolina Emergency Management Division (SCEMD) successfully demonstrated the capability to provide multi-agency coordination for incident management by activating and operating the State Emergency Operations Center (SEOC) in response to a simulated incident involving H.B. Robinson Steam Electric Plant (HBRSEP). This included SEOC activation, notification, staffing, management, direction, control and coordination of response activities. Also demonstrated was the ability for coordination of public information and warning and maintenance of the information and communication necessary for coordinating response activities.

Alert and notification of all essential personnel was made in a timely manner using REACH SC, an electronic digital phone, text and email notification system. The SEOC had sufficient equipment and communications for conducting operations and communicating with other state agencies and risk counties. Communications were redundant and reliable throughout this exercise. The State Warning Point (SWP) is a newly renovated facility, conveniently located immediately adjacent to the SEOC Operations Room. The floor space within the SWP provided enough space for two large work station modules, amateur radio and media monitoring. Overall, the SWP is equipped with the most up-to-date, modern technology. The modernized SWP enhanced the State's capability to receive and manage communication resources.

The SCEMD Director and the Chief of Operations clearly demonstrated the ability to provide effective emergency response. The SEOC staff, composed of representatives from various state agencies, clearly understood their responsibilities, followed their plans and

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effectively performed their assigned duties with proficiency. Outstanding direction and control was demonstrated throughout the exercise. However, an erroneous EAS message and news release was generated and released at the direction of the Director after updated information was made known to him. EAS message 3 and News Release 7 inaccurately reflected that there “was no release of radioactive materials to the environment” when the state and counties were in receipt of ENF 6 which indicated a release.

Demonstrated use of the bridge line improved the timeliness of the decision making and coordination process between the state and risk counties relative to that of the 2010 Oconee Nuclear Station exercise. In that exercise an ARCA (42-10-1c1-A01) was issued to the state for their coordination with the risk counties and the issuance of emergency information/instructions to the public via the prompt alert and notification system was not always conducted with a sense of urgency and without undue delay; taking 64 minutes from receipt of an emergency classification level (ECL) to the release of an EAS message. During this demonstration, the average time of emergency notification form (ENF) receipt to a coordinated PAD being made was 31 minutes. Thus ARCA 42-10-1c1-A01 is resolved.

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, 3.d.1 and 3.d.2.

## 2010 Oconee ARCA 42-10-1c1-A01 Resolved

**Condition:** Coordination and issuance of emergency information/instructions to the public via the prompt alert and notification system was not always conducted with a sense of urgency and without undue delay.

**Corrective Action Demonstrated:** The State and Counties used a bridge line to reach a consensus decision. The use of the bridge line eliminated significant delays in the decision making process thereby resolving this ARCA.

## Emergency Public Information and Warning:

SCEMD successfully demonstrated the capability to promptly alert, notify and warn the public of an emergency at HBRSEP by coordinating with the risk counties of Chesterfield, Darlington, and Lee, as well as other federal, state and local agencies. This capability was demonstrated at three separate locations during this exercise; at the SEOC, the LP1 station and with waterway warning of Lake Prestwood.

Upon the notification that the utility had declared an Alert, and subsequently Site Area Emergency and General Emergency, the SEOC staff followed established procedures and coordinated the activation of the Alert and Notification system. Upon receipt of ECL changes by the utility, SEOC staff authenticated the transmissions before initiating actions which were keyed to the escalating ECLs. They closely followed the outlined steps of coordination and decision making and generally within 30 minutes of receipt of a change of plant status had coordinated an appropriate response. The SCEMD Public Information Officer (PIO) faxed all EAS messages and news releases to the Joint Information Center

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(JIC) for distribution to the media, faxed them to the risk counties, and simulated their placement on the SCEMD website, which would provide additional emergency information for the public.

The second aspect, preparation and dissemination of emergency information, was also successfully demonstrated. The PIO in the SEOC prepared and released nine press releases, staffed through the SEOC and released at the JIC. All information released to the media was consistent with protective action decisions and emergency notification forms. All releases were current and accurate. Through constant coordination with the JIC the SEOC PIO assured that any false rumors or trends were addressed in subsequent news media briefings and/or news releases.

Release of the EAS message was successfully demonstrated by WJMX (103.3 FM/970 AM) which serves as the Local Primary (LP-1) for the HBRSEP area. Radio staff received and authenticated an EAS message from SCEMD and properly demonstrated procedures for broadcasting the message locally at the time requested by SCEMD. The station is not staffed twenty-four hours per day; during off hours, the SEOC has the ability to interrupt programming to allow for the EAS messages to be broadcast directly from the SEOC. This LP-1 is equipped with emergency power generators capable of broadcasting the EAS message at any time.

The South Carolina Department of Natural Resources (DNR) is responsible for waterway warning in Darlington and Chesterfield County during an incident requiring evacuation from the emergency planning zone (EPZ). The initiation of waterway warnings on Lake Prestwood and Lake Robinson is the decision of the Emergency Management Directors from Darlington and Chesterfield County. Plans call for the initiation of notification to persons on the lakes at the SAE ECL and then a mandatory evacuation notification at the GE ECL. The DNR is represented in each of the County EOCs and SEOC and those EOC representatives have direct communications with DNR officers on the lakes via 800 MHz radios. The DNR officers were equipped with adequate watercraft to traverse the required area in a timely manner. Communications via 800 MHz radio, High Band (155 MHz) radio and cellular telephone were demonstrated to be audible and consistently dependable. Officers were familiar with their assigned duties and locations; they were equipped with sufficient dosimetry to limit their exposure to allowable limits. They had received enough training to properly position, read and record dosimetry. The officers were familiar with the purpose of Potassium Iodide (KI), knew its possible side effects and were aware that they should not ingest KI without direction from their supervisors. They knew to report to a decontamination facility upon mission completion and to return all radiological equipment to the issuing entity. The DNR officers clearly demonstrated the ability to rapidly deploy their watercraft and to communicate emergency information to persons on the lakes in a timely manner.

For this capability the following REP criteria were MET: 5.a.1, 5.b.1

**ARCA Resolved:**



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Issue No: 54-09-1.d.1-A03

**Condition:** The Darlington County Emergency Operation Plan calls for the Sheriff's Office to provide 800 MHz radios to all law enforcement agencies that respond to assist in the event of an incident at the HBRSEP: (Annex 25 Appendix A; Section V. D.1.a ) (page 43). It also calls for interoperable radio communications between law enforcement agencies. The DNR officers had neither handheld or vehicle mounted radios capable of 800 MHz operation. The DNR officers are equipped with VHS radios that serve as their normal primary communications systems and each carry cellular telephones as secondary communications. Upon arrival at the EOC the officers failed to acquire 800 MHz radios and the handheld radios were not included in the kit that was prepared for their use.

**Corrective Action Demonstrated:** The Darlington Count Sheriff's Department and DNR developed the procedures for the issuance of handheld 800 MHz radio to the DNR officers assigned to Lake Warning. The procedures were followed and the DNR officers were issued 800 MHz radios.

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

South Carolina Department of Health and Environmental Control (DHEC) dose assessment personnel assigned to the SEOC, were effectively alerted, notified and mobilized in a timely manner. The dose assessment personnel occupied adequate facilities, and possessed equipment, maps, displays, and other supplies sufficient to support emergency operations. DHEC personnel successfully established, maintained and managed primary and auxiliary communications capabilities between HBRSEP and the dose assessment group. 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 composed of a Dose Assessment Coordinator (DAC), Dose Assessment Analyst, a GIS- specialist, a WebEOC Specialist, a DHEC Information Officer, a DHEC Liaison Officer and an HBRSEP Utility Liaison. The DAC developed Protective Action Recommendations (PARs); including the administration of Potassium Iodide (KI), for the general public considering meteorological data, HBRSEP and DHEC dose projections, and DHEC Field Monitoring Team (FMT) results. The ESF-10 ERC provided timely precautionary actions and PARs to the Governor's Authorized Representative (GAR). The ESF-10 ERC used a decision-making process, considered relevant factors and appropriate coordination to ensure that an exposure control system, including the use of KI, was in place for emergency workers.

The Mobile Operations Center (MOC) provided direction to two field monitoring teams to locate and track a simulated radiological plume. The MOC Coordinator and Field Team Director provided excellent direction and control of the MOC and field monitoring team personnel and ensured appropriate exposure control for emergency workers. The MOC Site Safety Officer provided a very thorough safety and radiological briefing to the field teams prior to their deployment. Overall, the members of the MOC were very committed to task, displayed excellent teamwork and performed their duties in an efficient and effective manner.

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The field monitoring capability was demonstrated by DHEC. Two field teams, designated as Bravo and Charlie, were dispatched from the South Carolina National Guard Armory in Darlington, South Carolina. Equipment, supplies and dosimetry were sufficient to support radiological monitoring operations. Communication systems were tested and verified operational before leaving the dispatch area. Survey equipment was both operationally checked and source checked before deployment into the field.

The field teams were given a radiological briefing by the Field Team Director. The field teams performed radiological surveys by traversing downwind locations as instructed by the Field Team Director. Airborne radioactivity was sampled using air samplers with particulate filters and sample cartridges. In addition, soil and vegetation samples were performed. Personnel exposure was recorded, tracked and transmitted to the Field Team Director. Field team members were knowledgeable of their exposure limits and the use of KI. Field team members demonstrated the ability to obtain measurements and samples in order to properly track and assess the plume.

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, 3.a.1, 3.b.1, 4.a.1, 4.a.2 and 4.a.3.

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

The establishment and maintenance of Traffic Control Points (TCPs) is the shared responsibility of the Darlington County Sheriff's Office (DCSO) and the South Carolina Highway Patrol (SCHP). The TCPs are established at or before the Site Area Emergency ECL at the discretion of the Darlington County Emergency Management Director (EMD). TCPs are pre-determined and posted within the Darlington County EOC and depicted on all maps issued to TCP personnel. The SCHP demonstrated the ability to establish and maintain TCPs at two TCP locations: TCP 16-E and TCP 16-F. Troopers demonstrated that they can be efficiently mobilized and deployed via radio. It was made evident that they have sufficient training and equipment to successfully complete the mission as required. Troopers were knowledgeable in their duties and demonstrated the ability to successfully limit their exposure through the judicious use of issued dosimetry and Potassium Iodide. They were well versed in exposure limitations and cognizant of their duty to report reaching a level of 0.1R as required by policy. Troopers successfully demonstrated the ability to support County efforts through traffic control and direction.

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 the utility operator activated the facility's Emergency Response Organization. At this time the Emergency Management responsibilities were transferred from the Control Room to the Technical Support Center, and actions were initiated to staff the Emergency Operations Facility (EOF). Adequate supplies and equipment necessary to support all response operations were readily available.

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 a liaison capacity between the utility operator and the State Emergency Operations Center. The government officials in conjunction with the utility operators Emergency Director, effectively communicated, coordinated and functioned as a cohesive response and recovery unit.

The utility operator's assessment as well as the State's independent assessments of the offsite health and safety considerations supported the protective action (PADs), which were based on plant conditions, and an ongoing environmental release. All PADs were based on sound technical analyses, which included environmental field measurements, computerized dose assessment models, plant conditions, a thorough understanding of the simulated emergency at hand, and effective interactions with the utility operator's senior staff.

During the 2009 HBRSEP exercise an ARCA was issued to the state because pre-deployment procedures had not been developed to ensure SCEMD staff are issued dosimetry prior to entering the 10-mile EPZ. The result was that state emergency workers deployed to the EOF without the capability to monitor their exposure levels and possible impact from the environment at the plant site, so they can determine what actions they need to take and whether additional staff will be sent to the EOF to replace them. SCEMD have revised their pre-deployment procedures to ensure the provision of dosimetry to emergency workers and during this demonstration emergency workers were issued the appropriate dosimetry prior to deployment, therefore ARCA 54-09-2.a.1-A-01 is resolved.

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

##### **ARCA Resolved:**

**Issue No:** 54-09-2.a.1-A-01

**Condition:** The HBRSEP EOF is located on site. The SCEMD representatives, as emergency workers inside the 10-mile EPZ, need dosimetry to monitor possible radiological exposure.

**Corrective Action Demonstrated:** SCEMD revised their pre-deployment procedures and the appropriate dosimetry was issued to personnel assigned to the EOF prior to them entering the 10-mile EPZ.

### 3.2.2.2 Joint Information Center (JIC)

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

The Joint Information Center (JIC) is a combined operation of the South Carolina Emergency Management Division (SCEMD) and State Department of Health and Environmental Control (DHEC) supplemented by and in support of public information operations of the utility. The JIC facility is managed and operated by and inside the Progress Energy Regional Response Operations Center (RROC). Media room access is controlled with security and access to the Command Room inside and adjacent to the media room is controlled with a secondary layer of security. The State Public Information Officer (PIO) and Information Response Group (IRG) were alerted, mobilized and activated in accordance with plans and procedures. They were effectively organized, and conducted coordinated operations, disseminated emergency public information to the public and briefed the media in a timely manner, without delay, and with a sense of urgency.

Direction and Control was clear and explicit; operations were well organized and conducted with precision. Scheduled and unscheduled media briefs were consistent, detailed, informative and engaging, allowing interaction with the media to convey pertinent information and clarify or dispel rumors. The public was consistently referred to supplemental and additional information available in English and Spanish in pamphlets and calendars already distributed to residents and available in media kits. Information is available on site, by phone, online and through social media and includes resources for Spanish, including interpreters.

The facility has adequate space, equipment and resources, including data processing, tracking, chronicling, projectors and maps; all of which aid in situational awareness to accommodate the staffs of the State PIO, DHEC, Darlington, Chesterfield, Florence and Lee Counties and that of the utility in performing their duties. However, County PIOs did not have access to individual printers to print and share their news releases with each other. Communications capabilities are redundant and although there were observed information technology shortcomings, there was no notable adverse impact to operations.

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 Chesterfield County

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

The Chesterfield County Emergency Management Operations Chief (OC) successfully demonstrated the capability to alert, notify and mobilize key staff in response to an incident at HBRSEP. The participation of the County Administrator throughout the exercise demonstrated a firm dedication to the safety and welfare of the county residents.

The OC and his staff were highly proficient in the performance of their duties and were proactive in their planning and implementation of County emergency response actions. The EOC was activated in accordance with the County plan and the Extent of Play Agreement. Redundant interoperable communications and sufficient equipment and supplies further enhanced the County's emergency response capability. The OC maintained direction and control, properly coordinated protective action decisions, and ensured situational awareness by conducting frequent staff briefings. Through interview, the ability to coordinate with local, regional and State agencies to establish evacuation routes, traffic control points and back-up route alerting was successfully demonstrated. There was seamless coordination to ensure at risk students and residents were notified and relocated. Emergency information and instructions to the public was accurate and delivered in a timely manner. All personnel interviewed were professional, well trained and knowledgeable of their responsibility to relocating residents.

All activities were conducted in accordance with plans, procedures and 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:**

Neither press releases nor EAS messages are released from the Fairfield County EOC. All 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. No coordination between the public inquiry staff and PIO was required due to the nature of the injects.

Backup Route Alerting was successfully completed through an interview of the OC. Backup Route Alerting was simulated by the OC after the Site Area Emergency ECL. Should problems develop with the siren alert system; the OC will task the Chesterfield Fire Department representative at the EOC to contact the closest Warning Teams (Volunteer Fire Squad) to performed Backup Route Alerting. Pre-scripted messages are available and read by the warning teams while driving the affected area. The Warning Teams would be

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notified via the Chesterfield County E-911 Center. Warning Teams would proceed immediately to pre-assigned areas utilizing mobile sirens, loud-speakers and horns to notify the public of the situation.

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:**

Citizen Evacuation and Shelter in Place Capability was successfully demonstrated via interview of the Chesterfield County School Procurement and Safety Director. He demonstrated complete knowledge of the Chesterfield County School District Nuclear Evacuation Plan. This plan contained a complete check-list of tasks by endangered schools and a list of transportation resources to be notified for the evacuation of the schools.

Chesterfield County evacuates three schools at an Alert ECL, no other private schools or daycares were identified by the EOC. Notifications to the endangered schools are made by the EOC via telephone or if the school representative is not present at the EOC at an Alert ECL, he will be notified and he will notify the schools principals via cell phone. A total of eight busses will evacuate the schools to Chesterfield High School, where parents will be reunited with their children. The endangered schools will notify the parents via a reverse 911 system and cell phone call, and the EOC PIO will issue a press release containing information on the evacuation of the schools.

The school's Resource Officers (Chesterfield Sheriff Deputies) provide security and escorts for the evacuation; the deputies communicate with the buses via 400 and 800 MHz radio.

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

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

Chesterfield County successfully demonstrated the ability to provide traffic and access control, to include provisions for accurate instructions for assigned personnel and the general public as well as sufficient equipment to manage the TCPs to support county emergency response operations.

This capability was demonstrated via interview of a Chesterfield County Sheriff's Deputy, who demonstrated knowledge of the FNF Annex-Q Plan. The Deputy provided thorough information as to procedures for briefing responders for responsibilities, exposure limits, record keeping and KI ingestion procedures. Deputies interviewed displayed basic knowledge of administrative exposure limits and activities to prevent exceeding any maximum doses. Deputies were very familiar with procedures for ingestion and recording the use of KI, in addition to the possible side effects of consuming KI.

Communications equipment consisted of vehicle and handheld radios and a cellular phone which were shown to be operable. The vehicle had sufficient traffic control equipment to aid in traffic control and additional materials could be supplied from support sources if

necessary. He was also knowledgeable of necessary duties including the removal of impediments to traffic.

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:**

Members of the Chesterfield County RCCC successfully demonstrated their ability to monitor evacuees, vehicles and emergency workers at the Chesterfield County High School. Monitoring and decontamination personnel wore appropriate direct-reading (DRD) and permanent-record dosimetry (PRD). Reception center personnel prepared the necessary paperwork for evacuees to be processed for congregate care. Personnel were knowledgeable of contamination limits, understood their responsibilities, followed plans and successfully demonstrated their ability to monitor evacuees and emergency workers as well as vehicles. Appropriate records were completed. Exercise participants were well equipped, well organized, and displayed a positive attitude throughout the exercise.

For this capability the following REP criteria were MET: 6.a.1 and 6.b.1

### **Mass Care (Sheltering, Feeding and Related Services):**

Chesterfield County successfully demonstrated the capability to establish a mass care facility and provide sheltering, feeding and related services to evacuees. The Central South Carolina Chapter of the ARC was responsible for managing congregate care facilities in Chesterfield County. The ARC Representative assigned to the Chesterfield County EOC was responsible for providing information to staff working at the Chesterfield High School RCCC and directing supplies and services to the RCCC. The ARC mass care operation addressed not only evacuee needs for food and shelter, but also medical and mental health needs.

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

## **3.2.3.2 Darlington County**

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

Darlington County Emergency Services personnel and EOC staff successfully demonstrated the capability to provide multi-agency coordination for incident management by activating and operating an EOC for a pre-planned or no-notice event. This capability included EOC activation, notification, staffing; management, direction, control, and coordination of response activities; coordination of efforts among neighboring governments at each level and among local, regional, and State EOCs and Federal Agencies; coordination of public information and warning; and maintenance of the information and communication necessary for coordinating response activities.

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The Emergency Services Director (EOC Manager) and the Radiological Officer (EOC Operations Officer) successfully mobilized the EOC Staff using a manual call out system. Once EOC personnel arrived they had access to computers, telephones, plans and checklists. There were display screens on two walls which displayed the WebEOC and other flat screen monitors displayed television news and EPZ maps. This demonstrated the ability to mobilize EOC staff and provide them with the equipment necessary to properly perform their duties.

The EOC Manager used the SSS for his main communication link and used the conference bridge and land lines for secondary communications. EOC personnel also had telephones, cell phones and facsimile machines for communicating with other agencies. The EOC also extensively used WebEOC for communicating and tracking actions. By using WebEOC, SSS and landlines the EOC Manager demonstrated the ability to maintain proper communications and coordinate actions with other county agencies and with the other counties and the State.

During the 2009 HBRSEP exercise, an ARCA was issued to Darlington County. The County did not have written procedures to ensure 800 MHz radios would be issued to DNR officers before deployment to their assignment for lake clearing. The result was that DNR officers had no direct contact with any other agency or with the County EOC without the use of a cellular phone. Darlington County has developed written procedures to ensure DNR officers are issued 800 MHz radios and during this exercise they were issued the proper communications equipment, therefore ARCA 54-09-1.d.1-A-03 is resolved.

The EOC Manager exhibited good direction and control of the EOC Staff and implementing protective actions. He effectively delegated actions to the EOC agencies and coordinated all actions with other counties. Briefings were held at appropriate times and the EOC Manager polled all agencies to review actions that they had been working, to review plans and checklists for future actions and to ensure they were coordinating actions with other agencies. The EOC Manager and the EOC Operations Officer reviewed PARs from the utility and from the State to insure they were the best decisions for their county and questioned any recommendations that they felt were not in the best interest for protecting the citizens of Darlington County.

The EOC Operations Officer worked closely with the agencies in the EOC to ensure all emergency workers monitored their exposure and took actions to minimize their exposures. He worked with the Sheriff's Department and SCHP Representative to mobilize and staff TCPs and with DNR for waterway warning activities.

The implementation of protective actions for Special Needs Populations was a cooperative responsibility of the Darlington County Department of Social Services (DSS) with the direct support of the Mass Care and Emergency Medical Services staff. The DSS leadership was aggressive in issuing mission requests to the applicable staff to carry out the transportation or other special needs missions. Each of the 26 missions were logged in the WebEOC activity log which facilitated tracking to assure all needs were addressed.

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There was one hospital, two nursing homes and two assisted living facilities in the Darlington County EPZ. One special care facility that cared for special needs personnel was self-supporting and did not need assistance from the EOC staff but was notified of the evacuation orders and other protective actions. There were no reported unmet needs during the activity.

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 Darlington County EOC Manager (Emergency Services Director) and his PIO demonstrated professional skills and aggressive initiatives in assuring timely warnings and related public information was generated to support emergency events in the jurisdiction. The EOC Manager actively coordinated with the SEOC and neighboring counties to schedule activations of the siren system to implement five PADs. He assured the County Public Information activity supported those decisions with appropriate media releases for the affected public. The PIO interacted with the EOC staff to assure media releases reflected both timely and correct information through the issue of ten press releases. There were frequent and timely exchanges of information with the County PIO at JIC. Public inquiries were addressed accurately through proper coordination with the EOC staff and HBRSEP Liaison. The EOC staff was kept current with portrayal of all major media activity on the WebEOC.

The EOC Operations Officer indicated that law enforcement patrols and volunteer fire department vehicles could be mobilized and driven on the routes where siren failures could occur. Announcements using a scripted guidance message provided by the EOC would be made over the vehicles PA system as they drove the routes. He indicated alerting could be performed within the required time limits.

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:**

Darlington County School System Principals and an Assistant Superintendent successfully demonstrated their ability to prepare for, ensure communication of and immediately execute the safe and effective sheltering-in-place and evacuation of students in response to a potentially dangerous environment resulting from an event at HBRSEP.

Six School Principals and an Assistant Darlington County School Superintendent were interviewed. All were knowledgeable of their plans and procedures. With minor exception based on number and age of student, school response plans were standard across each school and in accordance to plans and procedures. The School District had a "no deviation policy" on their lockdown procedure regardless of situation. This policy would result in good positive control of all students. They described how they would have effectively used

the School Connect Rapid Notification System to contact all parents in the event of any emergency.

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

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

The Darlington County Sheriff's Department successfully demonstrated their ability to reduce the impact and consequences of a radiological incident by securing the affected area and safely diverting the public from hazards and providing security support to other response operations.

Deputies were very knowledgeable on evacuation routes and TCP set up, and maintained access to all necessary equipment and supplies. Deputies displayed basic knowledge of administrative exposure limits and activities to prevent exceeding any maximum doses. Deputies were very familiar with procedures for ingestion and recording the use of KI, in addition to the possible side effects of consuming KI. They displayed thorough knowledge of actions to take to remove impediments from the road, to prevent any restriction in traffic flow.

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:**

Darlington County effectively demonstrated the monitoring and decontamination of emergency workers and vehicles/equipment. The Darlington County Fire District Station 2 located at 137 North Center Road, Hartsville, South Carolina has more than adequate space for the EWD functions and was well planned and marked to ensure management of possible contamination. Operations at the Station 2 were set up to ensure proper contamination control utilizing marking tape, plastic sheeting and kraft paper, along with good water drainage. Traffic cones and other barriers were available and would be employed in a real event. Darlington County Fire Departments, EMS and HAZMAT have approximately 80 EWs that receive training in radiological monitoring annually. Sixteen firefighters participated in the EWD demonstration, and used effective procedures to monitor and decontaminate one vehicle and two emergency workers. Overall, the team successfully accomplished the mission in a professional manner.

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.

## **Triage and Pre-Hospital Treatment**

Darlington County Emergency Medical Services (EMS) staff successfully demonstrated their activities under the Triage and Pre-Hospital Treatment Capability during this Medical Services Drill. After receiving a call for assistance the EMS team dispatched appropriate emergency medical service resources, which provided appropriate contamination control for the victim

and the EMS team, and necessary pre-hospital medical treatment. Communications was established and maintained between the EMS team and Carolina Pines Regional Medical Center. The EMS team managed their exposure from transit to the victim through demobilization. While the ambulance was in route to the hospital, appropriate medical information and estimated time of arrival was provided to the hospital on the contaminated injured patient.

For this capability the following REP criterion was MET: 6.d.1.

## **Medical Services**

Carolina Pines Regional Medical Center (CPRMC) staff successfully demonstrated medical treatment of a contaminated injured patient during this Medical Services Drill. Upon notification from the Darlington County EMS staff, the CPRMC Radiological Response Team immediately initiated the hospital's preparation of a Radiological Emergency Area. They were assisted by HBRSEP Radiological Control Technicians for radiological support. The patient was decontaminated with medical care taking priority. The team demonstrated exceptional teamwork, contamination control and patient care during the drill.

For this capability the following REP criterion was MET: 6.d.1.

### **3.2.3.3 Lee County**

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

Lee County successfully demonstrated their ability to manage the EOC. Through discussion with the EMD and review of county recall rosters provided, it was determined the county has an effective recall system with all key and essential positions identified for each county level of activation for each 12 hour shift. Personnel recall was accomplished by the EOC telephone. Required personnel responded to the recall and the Emergency Management Director (EMD) declared the EOC operational.

Equipment, maps, displays, dosimetry, KI and other supplies were sufficient to support emergency operations in the county. Multiple communications systems were available and utilized during the exercise. Communications systems were effective and uninterrupted throughout the exercise.

The Lee County EMD was in charge of direction and control of the incident at this location. Very little direction was needed by EOC staff as they were all familiar with county plans and procedures and conducted their assigned responsibilities seamlessly by using their tabletop Standard Operating Guides (SOGs) provided for each agency. Frequent staff briefings and round table discussions were conducted to ensure that all essential emergency response elements were carried out as identified in the plan. The county demonstrated their ability to effectively coordinate with the State, other risk counties, and outside agencies throughout the exercise. Resource requests and tasking were effectively managed by the use of message forms. Pre-Protective Action Decisions or decisions not to act related to the

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functional needs populations were made and the EOC staff implemented those decisions effectively.

PADs for the general public were made by the State after coordination with the affected counties. PADs were based on the utility-provided PARS and the states independent review of conditions. Plant conditions, air monitoring reports, road conditions and local weather, were consistently monitored to ensure the safety of the public and EWs. The EMD was prepared to utilize radiation exposure limits that were established by the State and county for EWs that included dosimetry correction factors and ensured EW exposures to radiation were kept to a minimum through the implementation of the policy; As Low As Reasonably Achievable (ALARA).

The EMD provided effective leadership in the EOC throughout the exercise. He and the operations officer continuously kept the EOC staff informed of plant conditions and effectively directed the staff in emergency management operations. The EOC staff, composed of multiple county and municipal agencies, smoothly worked as a team to accomplish their response to this incident. Throughout the exercise, EOC leadership was proactive and analytical in resolving issues and all activities were carried out in accordance with county plans and procedures.

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:**

Lee County, in coordination with the SEOC, demonstrated the ability to jointly develop, coordinate and disseminate accurate and timely information to the public prior to and during an emergency. They effectively activated public warning systems enabling the notification of the most at risk population. These early warnings contribute immensely to the safety and well-being of the affected population.

Lee County utilizes their PIO to develop, coordinate and disseminate accurate and emergency information to the media and the public. Lee County directed one of their PIOs to report to the JIC to coordinate all county news releases and keep the county informed of all other news releases emanating from the JIC. The other remained at the county to coordinate and monitor news release activity and respond to public inquiry calls.

Timely alert and dissemination of accurate emergency information and instructions to the public was accomplished by activation of the siren system by Lee County. Coordinated messages were sent to the LPI Station for transmission. This activation is ordered by the SEOC after the coordinated decision with the risk counties is made. Timely dissemination of information to the media occurs in the form of news releases and press conferences generated and released from the JIC.



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One media message was initiated in the Lee County EOC before the JIC was activated. It was forwarded to the State for vetting and dissemination. Several rumor calls were received in the EOC that were relayed to the JIC for possible addressing in media briefings.

Backup route alerting 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. Sheriff's representatives in the EOC were interviewed regarding the procedures they would use to facilitate the notification of residents in Lee County. They were knowledgeable of their responsibility to provide the pre-scripted message to be broadcast and the maps of the areas requiring alert to the officers responding.

Emergency workers were provided a Radiation Safety Briefing, and issued appropriate personal radiation protection equipment to include KI. The briefing was effective and all EWs were able to answer all questions relating to their personal protection in a possibly radiological contaminated environment.

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

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

Traffic Control Points (TCP) were effectively demonstrated. Officers from both Lee County and the City of Bishopville were alerted and mobilized rapidly. Their patrol cars had numerous means of communication that worked, and all necessary equipment to establish TCPs on board. Maps of the designated TCPs were provided along with an information paper relating to evacuation routes allowing the officers to provide accurate instructions to the public.

Officers were trained on personal dosimetry, turn back values and KI. Officers were also trained on procedures for identifying and removing traffic impediments as well as re-entry procedures for citizens and emergency workers. Lee County demonstrated the ability through discussion to reduce the impact and consequence of an evacuation of a major portion of their county by rapidly establishing TCPs. These points not only assisted traffic flow out, diverting the public from the possible hazards, but also would discourage theft and vandalism from occurring in evacuation zones.

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:**

This capability was demonstrated for both the Bishopville Fire Station #1 EW monitoring and decontamination facility and the RCCC located at the Lee Central High School, both staffed by the Lee County Fire Department and Emergency Medical Services staff. The Lee County Fire Department and Emergency Medical Services staff were activated, staffed and demonstrated the ability to provide monitoring and decontamination of all county workers, their vehicles and equipment at the Bishopville Fire Department. Personnel were supplied

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the necessary equipment to successfully monitor and decontaminate other emergency workers. There were initial problems with correctly operationally checking and using the survey instruments by the staff. The Incident Commander was alerted to the problem and conducted on the spot re-training so that the staff gained confidence that they were using the equipment correctly. They were equipped with the necessary protective equipment to protect them while ensuring that other workers were monitored and successfully decontaminated in accordance with Federal and State requirements for exposure and contamination control regulations. The EWD layout worked well and allowed incoming vehicles to be monitored and decontaminated while the driver and passengers were successfully monitored and cleaned up from any radiological contamination that they may have picked up during a release from HBRSEP.

The RCCC at the Lee Central High School utilizing the same staff demonstrated the ability to collect, monitor, and decontaminate evacuees arriving from Lee County. The traffic layout was simple and direct using signs and traffic cones to funnel evacuees into the back parking lot of the High School, as laid out in the Lee County Shelter Monitor and Decontamination SOG. The parking lot had sufficient parking space to handle the incoming vehicles. Vehicles unable to be quickly decontaminated were parked in a secluded area away from the main parking lot. The personnel were trained and supplied the necessary survey equipment and personal protective gear to successfully monitor and decontaminate both the evacuee vehicles and the evacuees. The vehicles were correctly monitored and decontaminated by Lee County Fire Department personnel while the driver and passengers were directed into the personnel monitoring process utilizing a Portal Monitor. The monitoring process for evacuees was quick and effective capturing their names and vital identification on an Evacuee Portal Monitoring Form. If the Portal Monitor did not alarm, the evacuees were directed into the school to the registration desk; if the Portal Monitor alarmed, they followed procedures and directed incoming personnel to a decontamination tent set up close to the Portal Monitor. There the evacuees were decontaminated and contaminated clothing removed and replaced. Once they were surveyed clean they were directed to the registration desk inside the high school.

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

**054-11-1e1-A2-Resolved:** Hazardous Materials Response and Decontamination; Lee County vehicle monitoring emergency workers improperly read and operated the radiological survey meter.

**Condition:** While attempting to determine a background reading on the Ludlum 3 survey meter, the scale was misread. Also, the source check process had to be gone through step-by-step with each person operating a meter. When conducting a survey of both vehicles and personnel they held the probe too far away and moved the probe too fast to accurately detect potential contamination. These problems were discussed and properly re-demonstrated during the exercise at both the Emergency Worker Monitoring facility and later at the Reception Center.

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**Possible Cause:** Although the workers had attended the annual radiation worker training they still had a demonstrated lack of knowledge with reading and operating the survey meters most likely due to insufficient practice time with handling the meters.

**Reference:**

1. Lee County Emergency Operations Plan – Tab M
2. Lee County Emergency Worker Decontamination - Activity 1, Task 1.3
3. Lee County Shelter Monitor and Decontamination Standing Operating Guidelines Tab E
4. EEG Capability: Hazardous Materials Response and Decontamination, Activity 1, Task 2.2 and 2.3, and Activity 2, Task 2.4

**Effect:** Potentially not reading the instrument scale correctly and not using proper technique to survey vehicles, equipment and personnel could result in allowing contaminated vehicles and personnel to leave the area while still contaminated beyond state requirements. This could pose a health threat to both those individuals and others they come in contact with, for potential internal exposure from ingesting contamination.

**Recommendations:**

1. Provide frequent refresher training for all staff.
2. Provide more hands on training throughout the year to practice with the instruments.
3. Emphasize at the Safety Briefing that steps to operationally check the meter are contained on the second page of the handout and must be followed.

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

**Corrective Action Re-demonstrated:** These problems were discussed and properly re-demonstrated during the exercise at both the Emergency Worker Monitoring facility and later at the Reception Center.

**Mass Care (Sheltering, Feeding and Related Services):**

The Lee County DSS and Central Carolina Chapter of the ARC demonstrated the ability of DSS staff and ARC volunteers to register evacuees and meet the congregate care needs of evacuees during a nuclear incident at HBRSEP. The limited number of participants and minimal display relegated much of the demonstration to interview. While all county and ARC personnel were conversant with their roles they did not have procedural guides or schematics available to substantiate what they were describing. In observations of simulated evacuees arriving at the registration site, both DSS and ARC personnel effectively executed the registration process and the subsequent initial entry and welcome into the shelter.

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Although the demonstration at Lee Central High School met the requirements established for this capability all would be served well by a refinement of plans and procedures.

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

### 3.2.4 Host Jurisdiction

#### 3.2.4.1 Florence County

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

Florence County Emergency Management Department and the Florence County Hazardous Materials personnel successfully demonstrated the capability to assess and manage the decontamination of relocated people and vehicles.

The reception area and the monitoring and decontamination areas at the Florence Civic Center had sufficient space to simultaneously process evacuees and emergency workers. The parking area had ample space to handle radiologically cleared and contaminated vehicles, as well as those required to support decontamination operations. Evaluators observed assembly and operational checks of Ludlum 3 handheld instruments and a Ludlum 52 portal monitor. Personnel supporting the decontamination operations were well trained in radiological monitoring, record keeping and decontamination operations.

Decontamination monitoring was sufficient to monitor an expected evacuee population within a twelve 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 (Sheltering, Feeding and Related Services):**

DSS and ARC successfully demonstrated the capability to provide services and arrange for accommodations for evacuees arriving at the Florence Civic Center. The Florence County Technical Hazards Coordinator gave an informative safety and radiological briefing to all EWs on site. Arrival registration for evacuees was performed after confirming that the evacuees had been radiologically monitored and found free of contamination. The registration capability was staffed to provide necessary services for a 24 hour period during emergency operations. Registration was accomplished by a cooperative effort of DSS and ARC personnel by completion of ARC forms. Evacuees would be referred to local lodging accommodations until commercial facilities would have reached capacity.

In the event that a decision to provide or recommend ingestion of KI is made, DHEC would distribute KI to evacuees. Sufficient local stocks would be available. Anyone receiving KI would be briefed on all pertinent information and written instructions were available in both English and Spanish.

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

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## Section 4: Conclusion

Overall, the exercise was a success. Officials and representatives from the State of South Carolina; the risk counties of Chesterfield, Darlington, Lee and host county Florence; Progress Energy 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 one ARCA:

1. 054-11-1e1-A1: *Resolved*; Hazardous Materials Response and Decontamination: Lee County. Lee County emergency workers successfully re-demonstrated procedures to properly read and operate survey meters, thus resolving this ARCA.

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# Homeland Security Exercise and Evaluation Program

AAR

2011 HB Robinson Steam Electric Plant REP Exercise

## Appendix A: Exercise Timeline

DATE AND SITE: November 15, 2011 – H. B. Robinson Steam Electric Plant

Emergency Classification Level or Event	Time Utility Declared	Time That Notification Was Received or Action Was Taken						
		SEOC	MOC	JIC	Chesterfield County	Darlington County	Lee County	Florence County
Unusual Event	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alert	0802	0814	0850	N/A	0814	0814	0814	N/A
Site Area Emergency	0946	0953	0954	1005	0953	0953	0953	N/A
General Emergency	1101	1113	1123	1108	1113	1113	1113	N/A
Simulated Rad. Release Started	1052	1140	1158	1145	1140	1140	1140	N/A
Simulated Rad. Release Terminated	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing
Facility Declared Operational		0905		0945	0830	0815	1000	N/A
Declaration of State of Emergency								N/A
State:		0920		0930		0937	0953	
Local:		N/A		N/A	N/A	1025	N/A	N/A
Exercise Terminated		1318		1332	1316	1320	1324	N/A
1st Protective Action Decision: "Stay tuned"		0927			0927	0927	0927	N/A
1st Siren Activation		0930		0930	0930	0930	0930	N/A
1st EAS Message		0945		0945	0945	0945	0945	N/A
2nd Protective Action Decision: Evacuate Zones: A-0 Shelter in Place Zones: A-1, B-1, B-2		1045			1045	1045	1045	N/A
2nd Siren Activation		1050		1100	1050	1050	1050	N/A
2nd EAS Message		1105		1105	1105	1105	1105	N/A
3rd Protective Action Decision: Evacuate Zones: A-0, A-1, A-2, B-1 Shelter in Place Zones: B-2, C-1, C-2, D-1, D-2, E-1, E-2		1149			1149	1149	1149	N/A
3rd Siren Activation		1155		1205	1155	1155	1155	N/A
3rd EAS Message		1210		1210	1210	1210	1210	N/A
4th Protective Action Decision: Evacuate Zones: A-0, A-1, A-2, B-1, B-2, E-1 Shelter in Place Zones: C-1, C-2, D-1, D-2, E-2		1225			1225	1225	1225	N/A
4th Siren Activation		1235		1245	1235	1235	1235	N/A
4th EAS Message		1250		1250	1250	1250	1250	N/A
5th Protective Action Decision: No change in evacuation/shelter in place KI for the public in zones: A-0, A-1, A-2, B-1, B-2, E-1		1256			1256	1256	1256	N/A
5th Siren Activation		1305			1305	1305	1305	N/A
5th EAS Message		1320			1320	1320	1320	N/A
KI Ingestion Decision: Emergency Workers General Public		1256	1258 1258	1312	1256	1256	1256	N/A

\*1150 release exceeded technical specifications



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# Homeland Security Exercise and Evaluation Program

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2011 HB Robinson SEP REP Exercise

## Appendix B: Exercise Evaluators and Assignments

Location	Evaluation Team	Capability
<b>Joint Operations</b>		
EOF	B. Trojanowski (NRC)	EOC Management
JIC	O. Spencer (FEMA) B. Spence (FEMA)	Emergency Public Information & Warning
<b>State of South Carolina – Director: George McKinney</b>		
SEOC	J. Ackermann (FEMA) M. Dolder (FEMA)	EOC Management
Dose Assessment	B. McRee (ICF)	HAZMAT Response & Decontamination
DHEC MOC	K. Earnshaw (ICF)	HAZMAT Response & Decontamination
Mobile Laboratory	K. Earnshaw (ICF)	HAZMAT Response & Decontamination
FMT 1	A. Bevan (ICF)	HAZMAT Response & Decontamination
FMT 2	J. Leatherman (ICF)	HAZMAT Response & Decontamination
TCPs	M. Dalton (ICF)	Emergency Public Safety & Security
Waterway Warning	M. Dalton (ICF)	Emergency Public Information and Warning
EAS (WJMX)	R. Hecht (FEMA)	Emergency Public Information & Warning
<b>Chesterfield County – Director Harold Hainey</b>		
EOC	R. Shaw (FEMA) G. McLemore (FEMA)	EOC Management Emergency Public Information & Warning
Protective Actions for Schools	A. Sera (FEMA)	Citizen Evacuation & Shelter In Place
TCPs	A. Sera (FEMA)	Emergency Public Safety & Security Response
Backup Route Alerting	A. Sera (FEMA)	Emergency Public Information & Warnings
Emergency Worker & Vehicle Decon	L. Rink (FEMA) H. Christiansen (ICF)	HAZMAT Response & Decontamination
Reception & Congregate Care	L. Rink (FEMA) H. Christiansen (ICF) R. Lemeshka (ICF)	HAZMAT Response & Decontamination Mass Care
<b>Darlington County – Director: Charles Stewart/Assistant: Mike McDonald</b>		
EOC	J. Harworth (FEMA) D. White (ICF)	EOC Management Emergency Public Information & Warning
Protective Actions for Schools	Q. Ivy (FEMA)	Citizen Evacuation & Shelter In Place Citizen Evacuation & Shelter In Place
TCPs	Q. Ivy (FEMA)	Emergency Public Safety & Security Response
Backup Route Alerting	Q. Ivy (FEMA)	Emergency Public Information & Warnings
Emergency Worker & Vehicle Decon	C. Burrell (FEMA) R. Smith (ICF)	HAZMAT Response & Decontamination
Medical Services Drill	A. Bevan (ICF) J. Leatherman (ICF)	Triage and Pre-Hospital Treatment

# Homeland Security Exercise and Evaluation Program

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**2011 HB Robinson SEP REP Exercise**

Location	Evaluation Team	Capability
<b>Lee County – Director: Mike Bedenbaugh</b>		
EOC	W. Cushman (FEMA) G. Bolender (ICF)	EOC Management Emergency Public Information & Warning
TCPs	G. Bolender (ICF)	Emergency Public Safety & Security Response
Backup Route Alerting	G. Bolender (ICF)	Emergency Public Information & Warnings
Emergency Worker & Vehicle Decon	R. Nash (FEMA) Bart Ray (ICF)	HAZMAT Response & Decontamination
Reception & Congregate Care	R. Nash (FEMA) B. Ray (ICF) B. Larrabee (ICF)	HAZMAT Response & Decontamination Mass Care
<b>Florence County – Director: Mike Puckett</b>		
Emergency Worker & Vehicle Decon	J. Sandberg (FEMA) L. Lewis (FEMA)	HAZMAT Response & Decontamination
Reception & Congregate Care	M. Herndon (ICF) J. Sandberg (FEMA) L. Lewis (FEMA)	HAZMAT Response & Decontamination

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## Appendix C: Extent of Play Agreement

### H.B. ROBINSON STEAM GENERATING PLANT, UNIT 2

#### FULL PARTICIPATION RADIOLOGICAL EMERGENCY PREPAREDNESS EXERCISE

**November 15, 2011**

*All selected objectives will be demonstrated fully in accordance with respective plans. It is requested that any issue or discrepancy arising during exercise play be allowed correction immediately, at all player locations, if it isn't disruptive to exercise play and if it is mutually agreeable to both the controller and evaluator.*

#### 1. Emergency Operations Management

##### Sub-element 1.a, Mobilization

*Criterion 1.a.1: ORO's 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 state and local government personnel will not be pre-positioned unless specifically identified in this agreement. Activation of facilities should be completed in accordance with state and local plans and/ or procedures.**

##### Sub-element 1.b, Facilities

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

**Chesterfield County Emergency Operations Center will be evaluated on November 15, 2011, to establish a baseline for this evaluation criterion.**

##### Sub-element 1.c.1, Direction and Control

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

**Direction and Control will be at the State Emergency Operations Center (SEOC). County Direction and Control will take place at the Chesterfield, Darlington and Lee County Emergency Operations Centers (EOCs). Florence County EOC will be located in their mobile command vehicle at the Florence City/ County Civic Center. The DHEC Mobile Operations Center will be pre-positioned at the South Carolina Army National Guard Armory 1764 Harry Byrd Hwy, Darlington, SC. The State Emergency Response Team (SERT) participants include the Emergency Management Division (EMD); ESF 6,**

Mass Care (DSS); ESF 8, Health and Medical Services (Department of Health and Environmental Control); ESF 10, Hazardous Materials (Department of Health and Environmental Control); and ESF 16, Emergency Traffic Management (Department of Public Safety and DNR). DHEC ESF-10 will provide one technical liaison per county, DHEC will coordinate with the County EMD Director to determine where the technical liaisons should be deployed. A simulation cell will represent the Office of the Governor, Office of the Adjutant General, FEMA Region IV, North Carolina, Georgia and non-playing South Carolina state agencies. All telephone calls pertaining to any simulated agency and any associated paperwork will be directed to the sim cell. The corrective action for the 2010 Oconee Nuclear Station Evaluated Exercise will be demonstrated here to include establishing a bridge line conference call capability for Decision line discussions/decision making.

Sub element 1.d, Communications

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

**This criterion will be demonstrated in accordance with state and local plans and procedures.**

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

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

**Potassium Iodide for emergency workers will be simulated by candy or other means (empty envelope marked KI).**

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

**FEMA Staff Assistance Visits (SAV) will be conducted at Florence, Darlington, Chesterfield and Lee Counties on April 13, 2011. The purpose of these visits is to inspect/verify training records, decontamination and monitoring equipment, TCP materials/supplies and KI stocks for storage and expiration dates.**

1. 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 insure 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.)*

**The decision process will be discussed with each jurisdiction.**

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 including: 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.)*

**Dose assessment will take place at the South Carolina State Emergency Operations Center (SEOC). This will be demonstrated in accordance with State Health plans and procedures. Protective Action Recommendations (PARs) by DHEC will be based on an evaluation of information received from the licensee independent dose assessments and field monitoring teams.**

*Criterion 2.b.2: A decision-making process involved 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, J.9, 10.M.)*

**The Governor, or her designee, will demonstrate the ability to make appropriate Protective Action Decisions (PADs) based on recommendations from SCEMD, DHEC and the risk counties (Darlington, Chesterfield and Lee). PADs that require sheltering or evacuation of residents and/or transients in the 10-mile EPZ will be coordinated with the Chief County elected official or designee. This will be demonstrated in accordance with established State and local plans and procedures.**

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, 10.c.d.e.g.)*

**There are a variety of Special Population groups within HBRSEP's 10-mile EPZ including a hospital, a college, public and private schools, total care nursing homes and institutions categorized as assisted care facilities. Darlington, Lee and Chesterfield County representatives will be prepared to discuss their plans and procedures to satisfy this criterion at their respective EOCs. A list of potential special needs population citizens will be provided to the FEMA evaluators.**

2. Protective Action Implementation.

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

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

**Emergency workers or emergency worker teams will use Self Reading Dosimeters (SRDs) and simulated Permanent Record Dosimeters (PRDs) to monitor and control radiation exposure. Emergency workers in low exposure rate areas will use PRDs and may use DRDs or place them in centralized areas.**

**The State Dosimeter Redistribution Plan will be discussed in the SEOC.**

**Emergency workers will be interviewed to determine their knowledge of radiation exposure limits.**

Sub-element 3.b. Implementation of KI Decision

*Criterion 3.b.1: KI and appropriate instructions are available should a decision to recommend use of KI be made. Appropriate record keeping of the administration of KI for emergency workers and institutionalized individuals (not general public) is maintained. (NUREG-0654, E.7., J., 10.e.f.).*

**If ordered, KI ingestion will be simulated. Record keeping will be discussed at Chesterfield, Darlington and Lee County EOCs.**

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, E.7., J.9., 10.c.d.e.g.)*

**Chesterfield, Darlington, and Lee Counties will discuss the ability and resources to implement appropriate protective actions for special population**

**needs. A list of people/facilities with special transportation needs will be provided to evaluators. Evacuation assistance will not be demonstrated.**

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

**Darlington County will simulate school relocations by interviews with key school staff members.**

**North Hartsville Elementary  
Thornwell School for the Arts  
Hartsville High School  
Coker College  
First Baptist Church Pre-School  
Thomas Hart Academy**

**To be evaluated at the Darlington County EOC on November 15, 2011 at 10:00 A.M.**

**Chesterfield County will simulate school relocations by interviews with key school staff members.**

**McBee High School  
McBee Elementary  
Plain View Elementary**

**To be evaluated at the Chesterfield County EOC on November 15, 2011 at 10:00 A.M.**

**Sub-element 3.d. Implementation of Traffic and Access Control**

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

**Traffic and Access Control Points (TACPs) are predetermined. The South Carolina Highway Patrol, Darlington, Lee and Chesterfield Counties will demonstrate TCPs via discussion. Decision making and management of TCPs will be accomplished at the respective EOCs as part of exercise sequence and implementation of the decision will occur on site. The Counties will provide escorts for the evaluators at the County EOCs and transport them to and from each of the TCPs to be evaluated. Traffic Management will be discussed at the EOCs.**

**State TCP:**



**TCP 16E: US-15/52/401 in Society Hill by the South Carolina Highway Patrol on November 15, 2011 at 10:30 A.M.**

**TCP 16F: North Governor Williams Hwy (US-52 N) and Dovesville Hwy by South Carolina Highway Patrol on November 15, 2011 at 11:00 A.M.**

Chesterfield County:

**SC-9&SC-145, SC- 102& US-1,SC-145 &S-13-29 and US-1& SC-145 by Chesterfield County Deputy Sheriff on November 15, 2011 at 10:45 A.M.**

Darlington County:

**TCP 16B: West Old Camden Road (S16-23) and New Market Road (S 16-39) by the Darlington County Sheriff on November 15, 2011 at 9:00 A.M.**

**TCP 16D: Intersection S. 5<sup>th</sup> St (SC-Business 15) and West Bobo Newsome Highway (SC-151) by the Darlington County Sheriff on November 15, 2011 at 9:30 A.M.**

Lee County:

**TCP US 15 and SC 34, US 15 and SC 341 by Deputy Sheriff at the Lee County EOC on November 15, 2011 at 10:00 A.M.**

*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 by discussion with the responsible Law Enforcement Agency at the Darlington and Lee Counties EOC. Chesterfield County Deputy Sheriff will discuss this at the Chesterfield County EOC.**

#### 4. Field Measurement and Analysis

##### Sub-Element 4.a Plume Phase Field Measurements and Analyses

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

DHEC will conduct a full mobilization of two field teams, the mobile radiological laboratory and the Mobile Operations Center (MOC). The mobile lab will be participating in the exercise for training purposes only and is requesting a courtesy evaluation. All DHEC field equipment will be pre-positioned. The MOC, Mobile Lab and field team members will deploy from the South Carolina Army National Guard Armory 1764 Harry Byrd Hwy, Darlington, SC. MOC personnel, Mobile Lab

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personnel and field teams will not be deployed to the armory until after declaration of Alert. The MOC will establish operations to demonstrate control of field operations within the 10-mile EPZ. PPE will be simulated.

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

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

*Criterion 4.a.2: 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)*

Direction and control of the two DHEC Field Teams will take place at the DHEC Mobile Operations Center (MOC) located at the South Carolina Army National Guard Armory 1764 Harry Byrd Hwy, Darlington, SC.

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

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

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

## 5. Emergency Notification and Public Information

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

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

**The State will coordinate Protective Action Decisions (PADs) with Chesterfield, Darlington and Lee Counties' Chief elected officials or designees. At the appropriate decision points sirens will be simulated (silent tests) and the EAS**

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will be activated. A "Test Message" EAS message will be transmitted to the Local Primary (LP-1) EAS station (WJMX Florence S.C.). Broadcast of an EAS test message will be simulated and the process will be discussed. Copies of the simulated EAS message and news release will be provided to the FEMA evaluator at the SEOC.

*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 HBR SEP of a failure of the primary alert and notification system. (NUREG-0654, E.6, Appendix 3.B.2.c)*

Since there is siren overlap and the failure of one siren will not impact prompt notification, Lee, Chesterfield and Darlington Counties will not demonstrate Back- up route alerting procedures. Discussion will occur at respective EOCs during exercise.

Lake Clearing for Darlington County will be demonstrated via boat launch from the Sonovista Landing on Lake Prestwood by the DNRs. Lake clearing will be discussed for Chesterfield County at Morrison's Bridge Landing on Lake Robinson Road. A FEMA evaluator will be escorted by a DNR Officer to the lake landing site for evaluation on November 15, 2011 at the conclusion of the TCP 16-D evaluation.

Lake Clearing / Landing for evaluation  
Lake Prestwood  
Sonovista Landing, Darlington County  
Morrison Bridge, Chesterfield County (by discussion)

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. (NUREG-0654, E.5, 7, G.3.a, G.4, a., b., c.)*

The State, Chesterfield, Darlington and Lee counties 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, Chesterfield, Darlington and Lee counties will be demonstrated at the JIC and appropriate county EOCs. Rumor control personnel will provide the FEMA Evaluator a rumor calls log.

Each county will prepare a press release prior to JIC activation and send to a designated fax number or via email/ telephone to the SIM cell in the SEOC. FEMA evaluators will have access to WebEOC boards at the State and County level.

## 6. Support Operations/Facilities

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

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

**Facilities will be fully set –up and materials to cover the walkways may be simulated. At least six people will be monitored and registered. Two emergency workers will be monitored via walk-thru and discussion. One emergency worker will be monitored and decontaminated (simulated) in accordance with local SOPs. Water will not be used on personnel for decontamination in the exercise. All necessary supplies will be on-hand. 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 General Population Decontamination Points being evaluated on November 15, 2011 are:**

Chesterfield County  
**Chesterfield Senior High School at 9:30 A.M.**

Florence County  
**Florence City/County Civic Center at 8:30 A.M.**

Lee County  
**Lee Central High School 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)*

**All necessary supplies will be displayed in accordance with local SOPs. At least two vehicles will be monitored and one vehicle decontaminated in accordance with local SOPs. Water will be used to demonstrate vehicle decontamination procedures.**

**Chesterfield, Lee and Darlington Counties will demonstrate both emergency worker and equipment decontamination. Florence County will only demonstrate emergency worker decontamination.**

**Emergency Worker/ Equipment Decontamination Points will be evaluated on November 15, 2011:**

Chesterfield County  
**Chesterfield Senior High School at 10:00 A.M.**

Darlington County  
**Fire District Headquarters-Swift Creek Sta.2 at 9:30 A.M.**

Lee County  
**Bishopville Fire Station #1 at 9:00 A.M.**

Florence County  
**Florence City/County Civic Center at 8:30 A.M.**

Sub-element 6.c, Temporary Care of Evacuees

*Criterion 6.c.1: Managers of congregate care facilities demonstrate that the centers have the 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.,12.).*

**Procedures that assure that only non-contaminated persons enter shelters will be demonstrated.**

**Congregate Care Facilities to be evaluated on November 15, 2011.**

Chesterfield County  
**Chesterfield Senior High School at 10:00 A.M.**

Lee County  
**Lee Central High School at 10:00 A.M.**

Florence County  
**Florence City/County Civic Center at 8:30 A.M.**

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.*

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Darlington County: Carolina Pines RMC, November 16, 2011 at 8:30 A.M.

## Medical Services Drill

### Extent of Play Agreement

#### H.B. Robinson Steam Electric Plant

#### Medical Services Drill (MS-1)

November 16, 2011

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

*Criterion 1.e.1, Equipment, maps, displays, dosimetry, potassium iodide (KI) and other supplies adequate to support the emergency management response. (NUREG-0654, H.7.10; J.10.a, b., e.; J.11; K.3.a).*

A Medical Services Drill will be conducted on November 16, 2011. The drill will commence at 8:30 A.M. at the Hartsville EMS Base, 402 S. 4<sup>th</sup> Street. The EMS crew will proceed to Byrdtown Fire Dept. (Station #12) located at 2400 Byrdtown Road, Hartsville, SC 29550. The drill will conclude at the Carolina Pines Medical Center. Carolina Pines is located at 1304 W. Bobo Newsome Highway, Hartsville, SC 29550.

Potassium Iodide for emergency workers will be simulated by candy or other means (empty envelope marked KI). Advanced rosters of emergency workers are not maintained.

#### 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 established plans and procedures. Emergency Workers periodically and at the end of each mission read their dosimeters and record the readings on the appropriate exposure record or chart. (NUREG-0654, K.3.a, b) (Note: Emergency workers are defined as both EMS and hospital workers.)*

The controller(s) will coordinate with the evaluator(s) to ensure that plans and SOPs are fully demonstrated while limiting the waste of medical supplies and radiological protective equipment.

Evaluators will be present to observe safety briefing, issuance of dosimetry, and operational check of survey equipment. Carolina Pines Emergency Room Staff will use DRDs and simulated Thermal Luminescent Dosimeters (TLDs/PRDs) to monitor and control radiation exposure. Simulated TLD means that real TLDs/PRDs will not be used. Emergency workers will be provided a graphic representation of a TLD/PRD to include serial number to demonstrate accountability of the TLD/PRD with an individual worker and an attachment clip to show proper

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wearing of the TLD/PRD on the body of the emergency worker. Emergency Workers will be interviewed to determine their knowledge of radiation incident response procedures (i.e. exposure limits, protective clothing, dose record keeping, etc.). Exposure record forms will be completed by participants and copies will be provided to evaluators.

### *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, K.5.b, L.1, 4)*

The initial call for EMS will be simulated by Darlington County personnel. The Darlington County EOC will contact and dispatch the EMS vehicle and personnel from the Hartsville EMS Base, 4115 4<sup>th</sup> St. to the staging area at Byrdtown Fire Department (Station 12) located at 2400 Byrdtown Rd. All hospital radiological response will occur after the call for assistance has been received. Evaluators will observe and capture communications between the simulated EOC, EMS and Carolina Pines Regional Medical Center.

The injured individual's vehicle will be simulated. Moulage will be used to depict the open wound suffered by the injured patient. Darlington County EMS will provide treatment to stabilize the simulated injured patient and transport that patient from the staging area to Carolina Pines Regional Medical Center. A FEMA evaluator will ride in the ambulance from the scene to the hospital.

Upon arrival at the Carolina Pines Emergency Room, Darlington County EMS will conduct a patient transfer to the hospital's Radiation Response Team (RRT). If necessary, ER staff will bring an x-ray machine to the decontamination room and simulate. Any X-rays requested by the hospital medical staff will be provided by an injected message from the controller. Patient decontamination and exposure control will be demonstrated by the RRT. Tap water will be used to simulate decontamination agents/fluids used to clean the wound. A controller will provide radiation instrument readings for all monitored activities. One RRT member will demonstrate the removal of anti-contamination clothing.

A radiological survey of the ambulance and crew will be conducted after patient transfer per the Darlington County EOP. After the completion of the radiological survey and transfer of the injured patient is complete Darlington County EMS will end their participation in this drill.

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## Appendix D: Scenario

### Plume Phase Scenario Summary

#### Initial Plant Conditions:

- Initial Conditions: Summer like weather with high temperatures and a cold front is approaching with the potential for scattered thunderstorms with cloud to ground lightning.
- Containment pressure relief commenced 0600 hours today.
- The Reactor Core is at end of life.

The "B" Emergency Diesel Generator (EDG) will be out of service due failure to of voltage regulator.

The "A" Emergency Diesel Generator is being tested for operability in accordance with procedures.

#### Time Table of Events

- 0700 - Exercise Window Open
- 0715 - Staff on Simulator
- 0725 - Assume the Watch
- 0730 - OST 401.1 for EDG "A" (the "A" EDG fails to start) (the "B" EDG is out of service due to voltage regulator problems)
- 0745 - Initiating condition for Alert (Both Emergency Diesel Generators are inoperable with only a single source of AC power to Emergency Busses E-1, E-2.)
- ~0800 - Declare Alert SA1.1 (AC power reduced to a single source for E-1 and E-2.) Wind from 190
- ~0815 - Notify State and counties and activate ERO.
- ~0915 - All facilities for ERO and ORO are activated except JIC.
- 0920 - Initiating conditions for Site Area Emergency (SAE) (Lightning strikes will cause low flow trips for both Main Feed Pumps. There will be a failure of the Reactor Protection System to complete an automatic reactor trip. The reactor will trip at the local breakers. Several control rods will be stuck out of the core and fuel damage will occur as a result of this event.)
- ~0935 - Declare SAE SS2.1 (Failure of automatic and manual trip from control room) Wind from 220
- ~0950 - Notify State and Counties
- ~1015 - JIC will be activated.
- 1100 - Initiating conditions for General Emergency (GE) (Leak will commence from RCS into containment, Containment High Range radiation monitors will indicate greater than 2000 Rem/hr)
- 1105 - Wind Shift Wind from 240
- 1115 - Declare General Emergency, FG1.1 (Loss of any two barriers and potential loss of the third) (barriers lost will be the fuel cladding and Reactor coolant system barrier, potential loss of containment)



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- 1130 - Notify State and Counties, with PARs based on plant conditions– Evacuate A-0, A-1, B-1, E-1, and shelter all other sectors.
- 1145 - Release starts (Monitored release from a failure of a containment penetration into pipe alley to the stack and the release will be monitored by R-14E.) Wind from 240
- ~1200 - Notify State and Counties
- ~1215 - Dose Assessment indicates greater than 5 Rem CDE at 5 miles.
- ~1230 - PARs based on dose projections to expand evacuation to 10 miles and Recommend KI and Evacuate A-0, A-1, A-2, B-1, B-2, E-1, E-2, and shelter all other sectors. Wind from 240
- 1330 - End of exercise when objectives are complete.

### Medical Services Drill Scenario Summary

The initial call for EMS will be simulated by Darlington County personnel. The Darlington County EOC will contact and dispatch the EMS vehicle and personnel from the Hartsville EMS Base, 4115 4<sup>th</sup> St. to the staging area at Byrdtown Fire Department (Station 12) located at 2400 Byrdtown Rd. All hospital radiological response will occur after the call for assistance has been received. Evaluators will observe and capture communications between the simulated EOC, EMS and Carolina Pines Regional Medical Center.

The injured individual's vehicle will be simulated. Moulage will be used to depict the open wound suffered by the injured patient. Darlington County EMS will provide treatment to stabilize the simulated injured patient and transport that patient from the staging area to Carolina Pines Regional Medical Center. A FEMA evaluator will ride in the ambulance from the scene to the hospital.

Upon arrival at the Carolina Pines Emergency Room, Darlington County EMS will conduct a patient transfer to the hospital's Radiation Response Team (RRT). If necessary, ER staff will bring an x-ray machine to the decontamination room and simulate. Any X-rays requested by the hospital medical staff will be provided by an injected message from the controller. Patient decontamination and exposure control will be demonstrated by the RRT. Tap water will be used to simulate decontamination agents/fluids used to clean the wound. A controller will provide radiation instrument readings for all monitored activities. One RRT member will demonstrate the removal of anti-contamination clothing.

A radiological survey of the ambulance and crew will be conducted after patient transfer per the Darlington County EOP. After the completion of the radiological survey and transfer of the injured patient is complete, Darlington County EMS will end their participation in this drill.

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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
HAZMAT Response & Decontamination	Proper operation of radiological monitoring equipment	Provide frequent refresher training for all staff.		Lee County	EMD	Successfully re-demonstrated during the exercise.
		Provide more hands on training throughout the year to practice with the instruments.		Lee County	EMD	Successfully re-demonstrated during the exercise
		Emphasize at the Safety Briefing that steps to operationally check the meter are contained on the second page of the handout and must be followed.		Lee County	EMD	Successfully re-demonstrated during the exercise

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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
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
HBRSEP	H.B. Robinson Steam Electric Plant
HSEEP	Homeland Security Exercise and Evaluation Program
HQ	Headquarters

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<b>Acronym</b>	<b>Meaning</b>
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

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Acronym	Meaning
SOP	Standard Operating Procedure
SRD	Self-Reading Dosimeter
SSS	Selective Signaling System
TCL	Target Capabilities List
TCP	Traffic Control Point
THD	Technological Hazard Division
TLD	Thermoluminescent dosimeter
UTL	Universal Task List
VFD	Volunteer Fire Department

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