BRUNSWICK NUCLEAR PLANT

AFTER ACTION REPORT

(FINAL)

August 31, 2010
Radiological Emergency Preparedness (REP) Program

FEMA

Published April 2011

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Administrative Handling Instructions

1. This After Action Report (AAR) for the 2010 Brunswick Nuclear Plant (BNP) Radiological Emergency Preparedness, Full Plume Phase Emergency Planning Zone (EPZ) Exercise is considered a public document.

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Executive Summary

On August 31, 2010, the Department of Homeland Security (DHS)/Federal Emergency Management Agency (FEMA) Region IV Radiological Emergency Preparedness (REP) Program staff evaluated a full plume exposure pathway exercise in the EPZ for the Brunswick Nuclear Plant (BNP). BNP is operated by Progress Energy and is located in southeastern Brunswick County, North Carolina near the City of Southport. The 10-mile EPZ is divided into13 emergency response planning zones and affects both the Counties of Brunswick and New Hanover.

FEMA's overall objective of the exercise was to assess the level of State and local preparedness in responding to a radiological emergency at BNP. The purpose of this report is to analyze exercise results, identify strengths to be maintained and built upon, identify potential areas for improvement and support development of corrective actions.

This exercise was held in accordance with FEMA's policies and guidance concerning the exercise of State and local radiological emergency response plans (RERP) and procedures. The evaluation team conducted this exercise using Homeland Security Exercise and Evaluation Program (HSEEP) methodology. The previous Federal evaluated exercise was conducted on November 18, 2008. The qualifying emergency preparedness exercise was conducted August 17-19, 1981.

The evaluation of out of sequence (OOS) activities during the weeks of May 10 and August 27, 2010 are included in this report. The activities included: traffic control points; back up route alerting; protective actions for schools; reception and congregate care centers; emergency worker and equipment monitoring and decontamination; and marine waterway warning. Additionally, a Medical Services (MS-1) Drill was conducted on September 14, 2010 at Dosher Memorial Hospital in Southport, North Carolina.

During the exercise no deficiencies were identified however, three Areas Requiring Corrective Action (ARCA's) were noted. The first concerned the activation of the siren system in Brunswick County. This ARCA was re-demonstrated during the exercise and cleared. Both the second and third ARCA involved the actions of the Risk Counties Public Information Officers (PIO) in the Joint Information Center (JIC). The PIOs of Brunswick and New Hanover County were not familiar with their roles in the JIC and failed to issue any news releases prior to the activation of the JIC.

Officials and representatives from the State of North Carolina, Brunswick and New Hanover Counties, the Nuclear Regulatory Commission (NRC) Region II, U.S. Coast Guard (USCG), National Weather Service (NWS) and Progress Energy as well as numerous volunteers participated in this exercise. The cooperation and teamwork of the participants was evident throughout all the phases of the exercise. FEMA wishes to acknowledge the efforts and hard work of the many individuals who participated in the success of this exercise.

The objectives for the 2010 BNP REP Exercise were as follows:

- **Objective 1:** Demonstrate the ability to provide emergency operations center (EOC) management including direction and control through the State and counties EOC Multi-Agency Coordination Center System (MACCS).

- **Objective 2:** Demonstrate the ability to provide protective action decision-making for State and county emergency workers and the general 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 the general public through exercise play.

- **Objective 4:** Demonstrate the ability to activate the Prompt Alert and Notification System using the North Carolina Alert and Notification 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.

- **Objective 6:** Demonstrate the ability to conduct independent dose assessment, management of field teams, and mobile or fixed laboratory analysis in response to a radiological release.

These objectives encompass the REP Exercise Evaluation Criteria as negotiated in the Extent of Play Agreement in Appendix H.

FEMA has provided an Improvement Plan (IP) to the State of North Carolina that details the Strengths and Areas for Improvement observed during the exercise. The IP was published under a separate cover and classified For Official Use Only (FOUO) in compliance with HSEEP standards.

Section 1: Exercise Overview

1.1 Exercise Details

Exercise Name
2010 Brunswick Nuclear Plant REP Evaluated Exercise
Type of Exercise
Full-Scale Exercise

Exercise Out of Sequence/Off Scenario Dates
May 11-12, August 27 and September 14, 2010

Exercise Date
August 31, 2010

Locations
See App. F for a complete listing of locations of supported exercise activities.

Sponsors
North Carolina Emergency Management
116 West Jones Street
4713 Mail Service Center
Raleigh, North Carolina 27699-4713

Progress Energy
410 South Wilmington Street
Raleigh, North Carolina 27601-1849

Program
FEMA REP 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
- Triage and Pre-Hospital Treatment
- Mass Care
- Public Health Laboratory Testing

Scenario Type
REP, Full Plume Phase EPZ

1.2 Exercise Planning Team Leadership

See App. G for a listing of the members of the exercise planning team leadership.

1.3 Participating Organizations

The following agencies, organizations and units of government participated in the 2010 BNP REP Exercise.

State of North Carolina
Office of the Governor
Department of Crime Control and Public Safety (CCPS) • Division of Emergency Management • State Highway Patrol
Department of Environment and Natural Resources (DENR) • Division of Environmental Health, Radiation Protection Section (RPS) • Division of Marine Fisheries, Marine Patrol • Wildlife Resources Commission Law Enforcement
Department of Health and Human Services • Division of Public Health – State Laboratory of Public Health
Risk Jurisdictions
Brunswick County, North Carolina • Board of Commissioners o Administration – Public Information Office • County Manager • Emergency Services o Communications - 911 Center o Volunteer Center o Emergency Medical Services (EMS) o Fire Marshal • Department of Social Services • Health Department • Sheriff's Office • Schools • Transportation • Public Utilities • Operations Services • Southport Police Department
New Hanover County, North Carolina • Department of Emergency Management o Response Emergency Management Organization (REMO) o Public Safety Communications Center (911) • Department of Social Services • Sheriff's Office

• City of Wilmington o Police Department o Fire Department • Schools • Department of Transportation • Fire Rescue Department • Town of Kure Beach • Town of Carolina Beach • Cape Fear Public Utility Authority • Department of Health
Federal
Department of Homeland Security • U.S. Coast Guard, Sector North Carolina • FEMA Region IV Department of Commerce, NOAA – National Weather Service Wilmington NRC Department of the Defense – Military Ocean Terminal Sunny Point (MOTSU)
Non-Governmental Organizations
Radio Amateur Civil Emergency Services (RACES)/ Amateur Radio Emergency Services (ARES)
American Red Cross (ARC), Cape Fear Chapter
Progress Energy
New Hanover Regional Medical Center • EMS
University of North Carolina (UNC) Wilmington – Trask Coliseum
The Salvation Army
Dosher Memorial Hospital

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/IP 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.

On March 15, 1981 the State of North Carolina formally submitted the RERP for the BNP to FEMA Region IV. Formal approval of the RERP was granted by FEMA on March 17, 1982 in accordance with 44 CFR 350.

A REP exercise was evaluated on August 31, 2010, and included evaluations of the following OOS activities held from May 11-12, August 27 and September 14 2010, consisting of the following:

- Waterway warning and clearing of the Cape Fear River with Incident Command Post operations conducted in Brunswick and New Hanover Counties by demonstration on May 12, 2010 with representatives from the U.S. Coast Guard; North Carolina Department of Environment and Natural Resources (DENR) Wildlife Commission, Law Enforcement; and Division of Marine Fisheries, Marine Patrol.
- Brunswick County: Protective actions for schools at Brunswick County EOC by interview on May 11, 2010; emergency worker and vehicle decontamination, and reception and congregate care at Leland Fire and Rescue Station by demonstration on May 11, 2010; traffic control points at Brunswick County EOC by interview on May 12, 2010. Including a Medical Services Drill (MS-1) for Dosher Memorial Hospital Sept 14, 2010.

- New Hanover County: Backup route alerting at Trask Coliseum by interview on May 12, 2010; emergency worker and vehicle decontamination, and reception and congregate care at Trask Coliseum by demonstration on May 12 and Aug 27, 2010.

2.2 FEMA Exercise Objectives and Capabilities

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, 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.

- **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.

- **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.

- **Public Health Laboratory Testing:** The Public Health Laboratory Testing capability is the ongoing surveillance, rapid detection, confirmatory testing, data reporting, investigative support, and laboratory networking to address potential exposure, or known exposure, to all-hazards which include chemical, radiochemical, and biological agents in all matrices including clinical specimens, food and environmental samples, (e.g., water, air, soil). All-hazard threats include those deliberately released with criminal intent, as well as those that may be present as a result of unintentional or natural occurrences.

Each capability is linked to several corresponding activities and tasks to provide additional detail. Based upon the identified exercise objectives, the following capabilities and associated activities are:

- **Objective 1:** Demonstrate the ability to provide EOC management including direction and control through the Counties and State EOC MACCS.
    - **Capability: EOC Management -** Activate EOC/MACC/IOF; Direct EOC/MACC/IOF Tactical Operations; and Provide EOC/MACC/IOF Connectivity

- **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.
    - **Capability: EOC Management -** Gather and Provide Information; Identify and Address Issues; and Support and Coordinate Response
    - **Capability: Emergency Public Information and Warning -** Manage Emergency Public Information and Warnings; Activate Emergency Public Information, Alert/Warning, and Notification Plans and Issue Emergency Warnings

- **Objective 3:** Demonstrate the ability to physically implement protective actions for State and Counties' emergency workers and public through exercise demonstration.

    - **Capability: EOC Management -** Direct EOC Tactical Operations; Gather and Provide Information; and Identify and Address Issues
    - **Capability: Emergency Public Safety and Security Response -** Activate Public Safety and Security Response; Control Traffic, Crowd, and Scene; and Command and Control Public Safety and Security Response Operations
    - **Capability: Citizen Evacuation and Shelter-in-Place -** Direct Evacuation and/or In-Place Protection Operations; Activate Evacuation and/or In-Place Protection; Implement Evacuation Orders for General Population; Collect and Evacuate Population Requiring Assistance
    - **Capability: Hazardous Materials Response and Decontamination –** Direct Hazardous Material Response and Decontamination Tactical Operations; Activate Hazardous Material Response and Decontamination; Assess Hazard and Evaluate Risk; and Conduct Decontamination and Clean-up /Recovery Operations
    - **Capability: Mass Care (Sheltering, Feeding, Related Services) -** Establish Shelter Operations and Shelter General Population.
    - **Capability: Triage and Pre-Hospital Treatment -** Direct Triage and Pre-Hospital Treatment Operations; Activate Triage and Pre-Hospital Treatment; Transport; and Provide Treatment

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

    - **Capability: Emergency Public Information and Warning -** Manage

Emergency Public Information and Warnings; Activate Emergency Public Information, Alert/Warning, and Notification Plans; and Issue Public Information, Alerts/Warnings, and Notifications.

- **Objective 5:** Demonstrate the effectiveness of plans, policies and procedures in the JIC for joint (public and private sectors) emergency information communications.
  - **Capability: Emergency Public Information and Warning -** Establish JIC; Conduct JIC Operations; Issue Public Information, Alerts/Warnings, and Notifications; Conduct Media Relations; and Provide Public Rumor Control.

- **Objective 6:** Demonstrate the ability to conduct independent dose assessment, management of field teams, and mobile or fixed laboratory analysis in response to a radiological release.

  - **Capability: Hazardous Materials Response and Decontamination –** Direct Hazardous Material Response and Decontamination Tactical Operations; Activate Hazardous Material Response and Decontamination; Assess Hazard and Evaluate Risk; and Conduct Decontamination and Clean-up /Recovery Operations
  - **Capability: Public Health Laboratory Testing –** Obtain and Direct Laboratory Testing, Surveillance, rapid detection, confirmatory testing, data reporting, investigative support, and laboratory networking to address potential exposure, or known exposure to in all matrices including clinical specimens, food and environmental samples, (e.g., water, air, soil).

2.3 Scenario Summary

This Exercise was conducted with the BNP Simulator in the interactive mode. Times given were for planning purposes only. Actual times did vary due to dynamic response of the Simulator.

Initial Conditions
The drill began with Unit 1 at 100% power and Unit 2 is at 75% power.

Unit 1 Initial Plant Conditions:
The plant was at 100 % power on day 312 of a continuous run. There are no work activities or planned events affecting generation in the next 24 hours. No significant Limiting Condition of Operation (LCO) items at this time. Risk condition Green.

Equipment Out of Service:
None.

Unit 2 Initial Plant Conditions:
The plant was holding at 75 % power five days after completing a scheduled refueling outage. Reactor engineering was performing required surveillance testing.

Equipment Out of Service:
Diesel Generator #3 is under clearance for a lube oil filter change out.

Meteorological Information:
Forecast:

Winds were out of the south southwest and steady. No precipitation was anticipated for the next few days. Wind Direction was from 180 195 degrees at the start of the exercise.

Wind Speed 6-8 mph
Temperature High: 85
Low: 70

Conditions at time of release:
Wind Direction from: 188 degrees
Wind speed: 5 mph
Temperature: 80 degrees
Stability Class: C

0730
The initial plant conditions and shift briefing were provided to the Control Room (CR) crew. During this time, the crew was informed of equipment out of service and other irregularities.

0800
Crew takes watch:

0820
Security officer called the Control Room and reports a vehicle accident involving a Grove Crane. The crane struck the Unit 2 Railroad Airlock outer doors causing significant damage to doors which now will not close or seal. The inner doors were not impacted and remain operable.

ALERT declared based on Emergency Action Level (EAL) HA1.6: Vehicle crash resulting in visible damage to any Table H-1 plant structures or equipment or Control Room indication of degraded performance of those safety systems.
The Brunswick Emergency Notification System was used to notify the ERO to activate the emergency facilities.

0830
2A Control Rod Driver (CRD) Suction Filter did experience a high differential pressure and the crew did respond per APP-05 6-1, CRD PUMP INLET FILTER ΔP HIGH. The 2B CRD Suction Filter did also have a high differential pressure when placed in service. The crew should follow the guidance of OP-08 and the APP. If the crew opens places both filters in service or opens the CRD Suction Bypass Valve for any reason, the alarm

will clear.

0855
TSC, Emergency Operations Facility (EOF) and OSC activate

0905
Outside Auxiliary Operator will report finding an instrument line on the discharge of 2A CSW Pump spraying water onto 120 VAC Panel 2A-SW (HQ4). Either securing the pump or having maintenance tighten a loose fitting will stop the leak. Investigation will reveal that water has gotten into the panel; however, no circuit damage or power interruption occurs.

0930
RWCU F/D A fail resulting in resin intrusion to the reactor. The resin intrusion will cause high reactor water conductivity alarms. The crew should respond per 0AOP-26.0, High Reactor Coolant or Condensate Conductivity. RWCU should be removed from service. The crew may elect to isolate RWCU by closing G31-F001 and/or G31-F004. Reactor power should be reduced per 0EOP-04-RRCP [using 0ENP-24.5] to clear the alarm.

The resin intrusion will eventually cause annunciator UA-23 2-6, MAIN STEAM RAD HI to alarm. Once the alarms are clear, reactor power should be maximized. This will be performed to maximize resin decomposition while staying below MSL radiation alarm set points and within chemistry limits.

As resin decomposes, the chemistry and radiation levels trend downward. The crew may enter 0AOP-05.0, Radioactive Spills, High Radiation and Airborne Activity, for increased plant radiation levels due to the increased N-16 production. Chemistry personnel will be directed to perform sampling of the Reactor Coolant, Condensate System and CST.

0955
Annunciator UA-23 3-7, 250 V BATT A GROUND, alarms.

0955
2A EHC Pump trips. The 2B EHC Pump automatically starts. This event will be accompanied by several alarms: UA-02 2-1; HYD FLUID PRESS LOW, UA-02 3-1; HYD FLUID PUMP AUTO-START, and UA-02 4-1; HYD FLUID PUMP OVLD TRIP. The Operator will respond to these alarms and observe that the 2A EHC Pump has no indication and that the 2B EHC Pump is running with a normal discharge pressure. An Auxiliary Operator will be sent to investigate the pump and pump motor (inside the EHC Room) and the pump breaker at MCC 2TF Compt. CZ1. I&C and/or Mechanical Maintenance may also be requested to investigate. I&C will determine that the pump motor failed and will need to be replaced.

1100
Main Generator Backup Lockout Circuitry fails. This results in a trip of the Turbine Generator. Due to an existing problem in EHC pressure control circuitry, the Bypass Valves fail to open. This results in a Design Basis Transient (Turbine Trip without Bypass). The turbine trip will fail to initiate a reactor scram and reactor power/pressure rise rapidly. Minimum Critical Power Ratio (MCPR) limits are exceeded, and fuel damage occurs.

The pressure transient will open all Safety Relief Valves (SRV), TRIP ARI, TRIP both Reactor Recirculation Pumps and cause a small rupture (1.9512 in^2) to Main Steam Line A inside the Turbine Building Locked High Radiation Area. Personnel working in the Turbine Building will call the Control Room to report a loud roar suddenly occurring somewhere inside the LHRA.

1105
Site Area Emergency (SAE) based on EAL SG2.1: Automatic scram fails to reduce reactor power < 2% (APRM downscale) AND Manual scram actions taken at the reactor control console (Manual PBs, Mode Switch, ARI) did not shutdown the reactor as indicated by reactor power ≥ 2%.

The crew should request assistance with diagnosing and repairing the problems with RPS that produced the ATWS. The Control Room will request Chemistry personnel sample the reactor coolant for evidence of Fuel Element Failure.

Both SLC Pumps are started and result in the MCC-2XH BKR tripping. The B SLC pump will be determined to have overheated with damage to the motor and a faulty breaker is found in MCC 2XH.

1107
Control rods are inserted sequentially using RMCS. This activity will require approximately 75 minutes to complete. Ultimately five (5) control rods (02-31, 06-39, 34-23, 34-39, and 46-43) will not insert and appear to be stuck. Additional assistance may be requested from AOs, I&C, and/or Engineering to determine why the control rods will not insert.

1200
Group 1 isolation signal occurs due to high temperature in the Turbine Building (caused by the Main Steam Line A rupture). All MSIVs except B21-F022A and B21-F028A close. MSL-A Flow Indication will initially indicate 0.25 MLBM/HR on P603 due to the rupture on Main Steam Line "A".

If the MSIV B21-F022A and/or B21-F028A control switches are placed in CLOSE, the valve's open indication will extinguish, however the green closed indication will stay off. The crew should recognize that MSL-A Flow Indication is unchanged and determine that

B21-F022A and B21-F028A are still open.

Fuel Failure severity will begin at 0.5% and Gross Fuel Failure severity will begin at 0.1%. The Drywell High Range Radiation Monitors will initially rise slightly, but will then indicate a lowering trend due to control rod insertion concurrent with boron injection from SLC. If either SJAE is in-service, both SJAE Radiation Monitors will begin to rise. The MSL Radiation Monitors will rise. No change will be immediately apparent on the Stack Radiation Monitor; however, over time the Stack Radiation Monitor will start rising if the SJAEs and Steam Packing Exhauster remain online.

While performing 0EOP-01-LEP-02, the crew determined that ARI will not reset. The crew should request a mission to investigate and repair ARI. The crew will insert control rods using the Reactor Manual Control System (RMCS) in accordance with 0EOP-01-LEP-02.

1222
All control rods were inserted with the exception of 5 rods that are stuck and did not insert. Nuclear Engineering will be requested to determine if the reactor will remain shutdown under all conditions without boron. Additional assistance may be requested from AOs, I&C, and/or Engineering to determine why the control rods will not insert.

1230 General Emergency (GE)
Gross Fuel Failure occurs. This occurs concurrent with a change in severity of the Main Steam Line "A" rupture from 0.5% to 5.0% over 2 minutes.
Drywell High Radiation Monitors exceed 2,000 R/HR.

General Emergency is declared based on EAL FG1.1: Loss of any two barriers AND Loss or potential loss of third barrier (Table F-1)].

Protective Action Recommendations are determined to be as follows:

Evacuate	**A, B, G, H, J, K**
Shelter	**C, D, E, F, L, M, N**
KI	**No**

1245
B21-F022A and/or B21-F028A close and isolate the source of release.

1345
Environmental Monitoring Team confirms off site dose rates.

1500
When all field actions have been completed and actions have been completed which have allowed evaluation of the required objectives, the exercise will be terminated.

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 August 31, 2010 plume exercise and OOS interviews and demonstrations of May 10-11, August 27 and September 14, 2010. 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 ARCAs assess and no unresolved ARCAs from prior exercise)
- ARCAs assessed or unresolved ARCAs from previous exercises
- Deficiency assessed
- Plan Issues
- Not Demonstrated

3.2 Evaluation Summaries

3.2.1 State Of North Carolina

3.2.1.1 State Emergency Operations Center

Emergency Operations Center Management Capability Summary:

Coordination within the North Carolina Division of Emergency Management (NCEM) State Emergency Operations Center (SEOC) was conducted by Communications Center personnel. Upon receipt of the notification the Communications Center personnel recorded information from the Brunswick Nuclear Plant (BNP) on the Nuclear Power Plant Emergency Notification Form (ENF) and received an email and faxed copy. Copies of the ENF were quickly given to each emergency support function (ESF), keeping SEOC personnel knowledgeable and well informed.

The majority of the SEOC staff was prepositioned as agreed upon in the Extent of Play. Staff personnel signed in and immediately began to perform their duties by reviewing WebEOC, a computer-based information system. At 0835 the SEOC was declared operational to Level 3 by the State Emergency Response Team (SERT) Leader. SEOC staff personnel were briefed on a regular basis of current incident conditions by the SERT Leader.

Communications and information systems were monitored. The use of faxes, Emergency Network (EMNet) system, phones, the Selective Signaling System (SSS), Decision Line (DL) and RACES/ARES amateur radio system were demonstrated with proficiency. Coordination was conducted among local, county, regional and State EOCs. Subsequent emergency classification level (ECL) notifications were received from the BNP EOF in a

timely manner as the scenario escalated. The SSS line, with terminals located in both the Command and Control room and the Communications Center, failed to operate during the initial notification call from Progress Energy. Personnel at both locations immediately switched to the alternate means of communication successfully, which was the DL, a conference call system which uses commercial phone lines. After the SSS line was restored to operational status at 0931 it had no further failures for the remainder of the exercise.

Issues, county requests and tasks were logged into WebEOC. The Eastern Branch Office (EBO) would review County requests first before being reviewed by the Assistant Directors. Each Assistant Director continually monitored and tracked respective inputs to fulfillment. The SERT Leader and Assistant Directors exhibited diverse training and in-depth experience which complemented one another with excellence. During the exercise, the three Assistant Directors regularly assumed the duties as the SERT Leader as to act in his absence while he was coordinating the States response to the pending Hurricane Earl. This developed into an excellent training opportunity for the Assistant Directors.

The North Carolina SERT Leader successfully demonstrated direction and control of the SEOC. The decisions were effective, coordinated, concise, deliberate and timely.

For this capability the following REP criteria were MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2 and 5.a.1

Emergency Public Information and Warning

The SEOC Public Information Officer (PIO) was responsible for the activation and implementation of the policies for the dissemination of information to the public. The SEOC PIO also coordinated messages and press releases with the SERT in preparation for elevated ECLs and a transfer of direction and control to the SERT Leader.

The SEOC PIO performed a vital role to the SERT during the entire exercise. She maintained telephonic contact between the SEOC and Joint Information Center (JIC). Her actions of continually reviewing the State press releases helped keep the SERT Leader and staff abreast of operations in the JIC.

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

3.2.1.2 Eastern Branch Office

Emergency Operations Center Management Capability Summary:

The NCEM EBO Manager successfully demonstrated the capability to alert, notify and mobilize emergency response personnel. After activation of the EBO EOC, the EBO Manager ensured the staff maintained situational awareness through frequent operational briefings. The interface between the SEOC Mission Area Coordinator, the Area Coordinator deployed to the BNP EOF and the Area Coordinators deployed to each risk

county EOC enhanced the EBOs ability to provide a central location for operational information sharing and resource coordination. State resources were strategically staged throughout the operational area and County requests were tracked via WebEOC. A key function of the EBO is to review and initially approve these requests for resources in WebEOC before they reach the SEOC. The equipment and communications present in the EBO were sufficient to support emergency operations.

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

3.2.1.3 Dose Assessment, Radiological Field Monitoring Team Direction and Control and Radiological Field Monitoring Teams

Hazardous Materials Response and Decontamination Capability Summary:

This capability was demonstrated by the Department of Environment and Natural Resources (DENR), Division of Environmental Health, RPS in four functional areas as follows:

1. Dose Assessment (located at the SEOC, Raleigh, North Carolina)
2. Field Team Management Direction and Control (also located at the SEOC, Raleigh, North Carolina)
3. Radiological Field Monitoring Teams (FMT) (Red and Blue Teams, staged out of the North Carolina Army National Guard Facility, Wilmington Airport, Wilmington, North Carolina)
4. Mobile Radiological Laboratory (also staged out of the North Carolina Army National Guard Facility, Wilmington Airport, Wilmington, North Carolina)

For Dose Assessment, the RPS staff pre-positioned in the SEOC included the RPS SERT Coordinator, Dose Assessment Team Leader, Dose Assessment Team Member and SERT Technical Liaison. The RPS staff routinely monitored and evaluated plant, radiological, and meteorological data, and coordinated with the Field Team Leader (FTL) managing the FMTs to locate, track and quantify the simulated radiological release. Adequate equipment, supplies and communications capabilities were available for all required tasks. Dose projections were performed to determine worst case scenarios based on plant conditions and radiological data, and projections made during the release were routinely consistent with utility results from the EOF.

The RPS SERT Coordinator provided direction and control of the dose assessment staff, worked effectively with the RPS Director and Public Health on potassium iodide (KI) decisions. The SERT Technical Liaison and the RPS Director evaluated and assessed the plant and off-site radiological conditions in order to provide input into protective action decisions (PAD) for the safety and health of emergency workers and the public. By interview, the RPS SERT Coordinator described procedures pertaining to the RPS staff for the alert, notification and activation process; the administrative dose limits, application of the Total Effective Dose Equivalent (TEDE) correction factor; and the

process for dose extension approval by the SERT Leader. All discussions were consistent with applicable plans and RPS standard operating guides (SOGs). Identified strengths included the communications link between the SERT Technical Liaison and the EOF Technical Liaison, and the use of North Carolina Health Physic Society (NCHPS) Team of Radiological Volunteers (TOREV) to participate and support RPS emergency response functions.

For Field Team Management Direction and Control, the FTL, two Communicators, and two support staff were pre-positioned in the SEOC. Two FMTs, the Mobile Radiological Laboratory (MRL) and a courier were also pre-staged in the field. Communications checks were made with all field personnel. Three systems enabled communications with personnel at all locations in the field, where at least one was operable at any given time. The FTL provided a comprehensive initial radiological and safety briefing to all field personnel. The FTL directed the FMTs to traverse appropriate routes downwind from BNP to effectively locate and track the simulated plume. The FMTs reported field readings to the Communicators following the format of the Radio Log form that minimized the possibility for the miscommunication of data. When pertinent data was received, the FTL promptly reported that information to the RPS SERT Coordinator and the RPS Director. The FTL ensured field personnel received information updates, as warranted. After the SERT Director informed the FTL that a decision had been made directing all emergency workers in the plume to take KI, the FTL directed the FMTs to do so. Later, when a courier was instructed to pick up a sample from FMT Red, the courier was not directed to take KI since the FTL determined the rendezvous point was outside of the plume. As the "area affected by the plume" was in question, a recommendation was made to modify the RPS SOG to accurately define the affected area in which KI administration is directed.

Two FMTs were pre-positioned at the Army National Guard Facility in Wilmington, North Carolina. The FMT equipment, supplies and vehicle were adequate to support radiological monitoring and emergency worker functions. Three communications systems were available, tested and verified operational before deployment. The FMTs were provided a general safety briefing at the MRL and an initial radiological briefing by the FTL. The FMTs performed hazard assessment by traversing downwind locations in a strategic manner, as directed by the FTL, to identify and quantify the magnitude of the simulated release. Radiological monitoring equipment was operationally tested prior to use, and used correctly in the field to determine ambient radiological conditions. Ambient readings and personnel exposures were routinely communicated to the FTL. Airborne radioactivity was assessed using an air sampler fitted with a particulate filter and charcoal cartridge. The FMT Red experienced a malfunction of their air sampler during the exercise and, while backup equipment is available and maintained by the SERT in Raleigh, no backup was locally available. A recommendation was made to operationally check the air sampler prior to field deployment, and to provide readily available backup equipment. The FML explained that he would also redirect the other FMT with the operable sampler to that area as a backup.

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

3.2.1.4 Mobile Laboratory

Public Health Laboratory Testing Capability Summary:

Although pre-positioned at the National Guard Facility at the Wilmington International Airport, the MRL Coordinator explained the RPS mobilization process. In the event of an actual emergency at the BNP, an on-call representative from RPS would be notified by the NCEM Communications Officer. The RPS representative would then call the MRL Coordinator to provide detailed instructions for deployment.

The MRL team consisted of a mobile laboratory coordinator, assistant coordinator, one technical analyst, one dosimetry coordinator and two sample control technicians. MRL and Sample Control personnel had current copies of the RERP. A variety of equipment was available to set up contamination control boundaries, sample receipt, sample preparation and sample holding areas. With the exception of the gamma spectroscopy system, the MRL and Sample Control area were adequately equipped and capable of supporting their emergency response function of sample receipt, preparation and radiological analysis of field samples. The MRL was also capable of providing communication support and FMT coordination operations, as needed.

A contamination control and sample processing area was set up in the National Guard Armory conference room to maintain a clean (non-contaminated) work environment. All personnel, samples and equipment were surveyed for removable contamination prior to allowing access to the sample processing area. Contamination control was accomplished through the use of plastic on floors and work tables, trays covered with absorbent pads in the sample receipt and preparation areas, personnel routinely changing gloves and monitoring for contamination, and monitoring and swiping sample bags, forms and equipment. These controls were in place to ensure samples were not cross-contaminated and to eliminate contamination from entering the MRL, as loose contamination inside the MRL could compromise the validity of sample analyses.

In accordance with the Sample Control procedure, only samples with external contact readings of less than 1 mR/hour would be counted in the MRL. A sample storage area was set up far enough away at the end of the sample control area such that stored samples would not appreciably increase the background. Two containers, one labeled "< 1 mR/hour" and one labeled "> 1 mR/hour" were placed in the sample storage area. Those samples exceeding 1 mR/hour would be placed in the appropriate container and the Progress Energy Carolinas radiological laboratory, located in New Hill, North Carolina, or EnRad Laboratories of Duke Energy in Huntersville, North Carolina, would be contacted to retrieve and count the samples. Sample aliquots could be determined by the way samples are delivered. If survey readings are high, samples can be counted with shorter counting times or diluted. This is discretionary on the part of technical analyst. The technical analyst was also familiar with the need to ensure that count times are appropriate to meet detection sensitivity levels for Protective Action Guides (PAG) and

Derived Intervention Levels (DIL). Samples less than 1 mR/hour that had been analyzed by the MRL would be placed in the appropriate container after analyses were complete. Additionally, per the Sample Control procedure, samples and surfaces would be considered contaminated if a swipe exceeds 300 counts per minute. RPS uses Tables 1 and 2 of FEMA REP 22, "Contamination Monitoring Guidance for Portable Instruments Used For Radiological Emergency Response to Nuclear Power Plant Accidents" dated October, 2002, to evaluate swipe samples.

The prepared samples would normally be relayed to the MRL for analysis, but its gamma spectroscopy system had been removed for repair. As an alternate, field samples were sent to the North Carolina State Laboratory of Public Health in Raleigh for gamma analysis (simulated). The MRL coordinator would contact the State Laboratory of Public Health to let them know that field samples would be delivered for radiological analysis. The MRL coordinator would also contact the Field Team Leader at SERT to get an escort from local law enforcement officials to expedite delivery of the samples. Samples would be delivered to the lobby of the State Laboratory of Public Health and a representative would sign the chain of custody documentation.

Although the germanium gamma ray spectroscopy system was not operational and removed for repair, the MRL Technical Analyst was interviewed regarding the process they would perform if the system was operational. He explained, prior to sample analysis in the MRL, the Technical Analyst would initiate the equipment calibration methodology and the procedure for conducting daily background and quality control checks. The technician would perform a daily background count and quality control check for each of the sample geometries (0.5 liter and 1.0 Marinelli containers, particulate filter, and face loading iodine sample cartridge). Upon completion of quality control checks, he would perform a long background count to be used to subtract from the total count in order to determine the sample count. The MRL personnel would then perform gross beta gamma counting of air sample cartridges and filter paper or perform gamma isotopic analyses of air sample cartridges, filter paper and environmental samples in Marinelli Beaker geometry. Gamma spectroscopy results could be transmitted to the North Carolina SERT via email or fax from the MRL.

The Sample Control and MRL personnel conducted their sample receipt, preparation and analysis functions in a competent and professional manner, demonstrated excellent teamwork and a thorough understanding of their technical procedures.

On the basis of the operational status of the germanium gamma ray spectroscopy system we conducted an expanded capability assessment of the laboratory of public health, a designated backup facility. The summary of this training evaluation is provided in Appendix B.

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

3.2.1.5 Marine Warning and Waterway Clearance

Emergency Public Information and Warning Capability Summary:

The demonstration for Alert, Notification and Evacuation of Marine Areas involved the North Carolina Wildlife Resources Commission (NCWRC), NC Marine Patrol, US Coast Guard (USCG) and Brunswick County Emergency Management Agency (EMA). The organizations are well prepared to conduct operations required to safeguard boaters and commercial shipping in the event of an emergency at the nuclear plant. The command and control function was demonstrated in the Mobile Command Center at the alternate site, the Brunswick County EOC, due to construction at the primary site at Carolina Beach State Park. Incident Command was demonstrated by the NCWRC and the NC Marine Patrol law enforcement officers, who worked together to equip and dispatch six boat crews and one fixed wing aircraft to warn and alert the general public using the public waterways. The boat and aircraft crews were briefed, issued dosimetry and assigned Marine Zone areas. The primary communications system, Marine Radio Channel 22 was unable to reach the boats or the aircraft from the Mobile Command Center, however, the backup system was cellular phone and worked throughout the demonstration. The aircraft commander and boat crews reported their exposure levels every 30 minutes and were successful in navigating their zones and notifying boaters to leave the area due to an emergency. The USCG also participated and would have issued Marine Information Broadcasts to alert commercial ship traffic in the Inland waterway, and direct the river pilots on placement of shipping traffic in the 10-mile EPZ. All personnel were well versed in their mission requirements and fully demonstrated the ability to warn the public on the Cape Fear River Waterway.

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

3.2.1.6 NWS Wilmington Airport

Emergency Public Information and Warning Capability Summary:

The NWS staff demonstrated the capability to organize, verify and transmit EAS messages in a timely manner. The EAS messages were received, and then authenticated before transmission via the tone alert radios. Backup EAS message transmission options were discussed in detail, as well as back up communication system availability, should an outage occur. Telephone authentications were used during the exercise. Upon receiving the fax message, the name of the agency was captured and matched to the North Carolina authentication code list with the corresponding code number.

Two emergency notification messages were received at NWS. Emergency Notification Message #2 was received at 1154. The second message # 4 was received at 1304. The first message was modified for a SAE ECL change and was transmitted for broadcast (simulated) at 1155. The second message was modified for a GE ECL change and included the PAD to evacuate zones A, B, F, G, H, J and K and shelter in place zones C, D, E, L, M and N.

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

3.2.2 Joint Operations

3.2.2.1 Emergency Operations Facility

Emergency Operations Center Management Capability Summary:

The EOF provided sufficient space and amenities to support emergency response operations and the State Liaisons that deployed to the EOF. NCEM and RPS liaison effectively performed their duties. Communications, coordination and the flow of technical information between and among the State officials deployed to the EOF, and with the utility operator and the SEOC, were outstanding.

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

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

3.2.2.2 Joint Information Center

Emergency Public Information and Warning Capability Summary:

This evaluation took place in the BNP JIC is located at the Brunswick County Community College, 50 College Road NE, Bolivia, North Carolina. North Carolina and Progress Energy procedures call for a coordinated activation of a JIC. Since the JIC is equipped by the utility and is close to the plant location, the utility staff routinely arrives and is prepared before State personnel arrive. From the State perspective the JIC is activated as soon as possible following the declaration of ECL SAE. During this exercise the State staff were prepositioned in the area and arrived at the JIC following instructions from the State control staff. The Lead PIO discussed the process by which the State team would have been alerted, briefed and deployed to the JIC. Following the activation of the JIC both Progress Energy and the State published news releases announcing the activation.

The government and corporate staffs followed precise procedures in the coordination and approval process of messages. All draft news releases were circulated to ensure that there were no conflicts or confusion in information being provided to the public. For the State, final message approval was obtained from the SEOC after transfer of direction and control. A noticeable shortcoming was a lack of risk county generated messages.

Although emergency action messages were prepared and disseminated by the SEOC, the JIC was responsible for the timely issuance of follow-on emergency information

messages. The SEOC/JIC coordination worked extremely well to ensure timely and focused messages were prepared, coordinated and released.

A key aspect of the JIC process is media relations, primarily the conduct of media briefings. The jointly staffed media center is a location where the JIC provides the media with prepackaged information and is the location briefings are presented. The BNP JIC policy was to conduct a briefing within one-hour of a change in plant status or as announced separately. The utility issued news releases confirming the time of each scheduled media briefing. The three briefings conducted during the exercise were well orchestrated and utility spokespersons were able to adequately field mock media questions. This aspect of the capability could be enhanced if Progress Energy analyzed the methodology its other JICs used in providing graphic and electronic support of media briefings. Unfortunately, the preparedness of risk county spokespersons was lacking and the information provided was not fully accurate although nothing stated would have adversely affected the public at the time statements were made (e.g., at 1315 it was stated that Brunswick schools were relocating when early dismissal took place at 1200). See ARCA's 08-10-5.b.1-A-02 and 08-10-5.b.1-A-03.

Within the JIC the State Rumor Control staff fielded 24 inquiries and accurately logged information on the Control Telephone Call Log Sheets. Inquiries that could not be answered were forwarded to the appropriate personnel such as the utility, counties or other information sources. The staff trended calls and reported those trends to the Lead PIO for resolution. The State staff had good interaction with the utility representative and they shared information concerning rumors. A noticeable shortcoming was that information pertaining to the resolution of rumors being addressed in the risk counties was not shared with county representatives in the JIC.

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

3.2.3 Risk Jurisdictions

3.2.3.1 Brunswick County, North Carolina

3.2.3.1.1 Emergency Operations Center

Emergency Operations Center Management Capability Summary:

The Brunswick County EOC leadership (Emergency Services Director and Emergency Services Deputy Director) showed exemplary command and control in the response to an event at BNP. ESF representatives and EOC staff operating the EOC demonstrated a clear knowledge and understanding of their roles and their agency's role in decision making and collaboration with other ESFs and off site response organizations. The leadership and support staff at the Brunswick County EOC are well prepared to protect the population of Brunswick County.

For this capability the following REP criteria were MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1,

2.b.2, 2.c.1, 3.a.1, 3.b.1, 3.c.1, 3.c.2, 3.d.1 and 3.d.2

Emergency Public Information and Warning Capability Summary:

The primary means of notification to the public is through a fixed siren system located throughout the EPZ. Brunswick County serves as the lead county for the BNP and will normally activate the system. However, New Hanover County has the ability to activate the siren system if necessary. Additionally, EAS messages are transmitted to the local LP-1 and LP-2 radio stations through the State of North Carolina warning point using EMNET. The activation of the weather radio system through the NWS Wilmington serves as an additional mechanism for notification. The EAS messages are pre-scripted and adjusted as necessary for current times and conditions.

The decisions to activate the sirens following the declaration of the Site Area Emergency and General Emergency ECL were concurred by the Brunswick County emergency operations center (EOC) Director in conjunction with the State and New Hanover County officials. The first protective action decision included agreement for coordinated siren activation followed by the release of an EAS and National Weather Service (NWS) message #1, stay tuned. Due to an internal computer malfunction that was identified, the initial siren (silent) activation attempt failed from the terminal in the EOC. A second attempt was then initiated using a backup siren terminal in the 911 Center, which is collated with the EOC. A failure to activate the sirens also occurred at this terminal. Through rapid troubleshooting of the system, the specific malfunction was identified and the sirens were successful (silent) sounded. At GE, a second siren (silent) activation was made and the system functioned correctly. The EAS message and NWS message release (Message #6) followed the activation as agreed. This issue is address below in ARCA 08-10-5.a.1-A-01

The extent of play indicated that the joint information center (JIC) would not be activated until the counties had the opportunity to prepare and disseminate an initial news release. This did not take place as agreed and after some delay, the JIC was allowed to activate. After the JIC was activated only one press release was coordinated and approved for release. Subsequently no further PIO releases from the JIC were coordinated or vetted with the knowledge of the EM Director or his staff for the remainder of the exercise. The lack of current information inhibited the staff, to include those responding to citizen calls, to provide reliable information outside of that released to the general public. This issue is address below in ARCA 08-10-5.a.1-A-01

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

Activity: Issue Emergency Warnings

Observation: (Area Requiring Corrective Action) 08-10-5.a.1-A-01. The initial sounding of the sirens failed, EAS message #1 was transmitted prior to the sounding of the sirens.

Analysis: Due to an internal computer malfunction that was identified, the initial siren (silent) activation attempt failed from the terminal in the EOC. A second attempt was then initiated using a backup siren terminal in the 911 Center, which is co-located with the EOC. A failure to activate the sirens also occurred at this terminal. Through rapid troubleshooting of the system, the specific malfunction was identified and the sirens were successfully (silent) sounded. This delay caused EAS Message #1 to be released prior to the sounding of the sirens. At GE, a second siren (silent) activation was made and the system functioned correctly.

Reference:

1. EEG, Activity 3.
2. NUREG-0654, Appendix 3
3. NC Radiological Emergency Response Plan, Annex C & E

Corrective Action Demonstrated: The correct siren system settings were confirmed at the GE ECL and the sirens were (silent) sounded successfully, followed by the EAS Message.

Activity: Establish JIC and Issue Emergency Warnings

Observation: (**Area Requiring Corrective Action)** 08-10-5.b.1-A-02. The Brunswick County PIO in the JIC was not familiar with his responsibilities and did not publish any news releases.

Analysis: The county PIO in the JIC was ill-prepared to fulfill their responsibility as a representative of the elected and appointed leadership. The spokesperson was unfamiliar with the County radiological emergency response plan and procedures that would be implemented to safeguard the citizens in the event of an incident at BNP. Further, the PIO was not sufficiently updated by their jurisdiction and did not have supporting materials and job aides to facilitate performance of their spokesperson responsibilities.

Key tenets of the Joint Information System (JIS) did not seem to be considered and were not evident in counties' procedures pertaining to activities prior to, or following JIC activation. The county representative was a spokesperson representing their elected and appointed officials before the media and therefore, needed to be knowledgeable of county radiological emergency response plans and procedures, as well as be cognizant of ongoing activities in their jurisdictions. At a, minimum they need to be able to address basic facts concerning a radiological emergency, such as emergency planning zone populations, evacuation routes and times, procedures for taking care of the special needs populations, protective

actions for schools and activities at reception centers. This information could be gathered into a standard briefing book for their use. The spokesperson also needs to be kept up to date on all actions taken to protect the health and safety of the public in their counties.

The Alert ECL was declared at 0826 and the State did not assume direction and control until 1230. During that time the County representative was silent on any actions that had been taken to protect their citizens during this (simulated) incident at BNP. Following their arrival at the JIC the State PIO staff prepared and issued 12 news releases.

The lack of preparation by the County spokesperson carried over to the media briefings and resulted in inaccurate information being presented to the media. This was most evident during the third media brief (1314) when in response to media queries the spokesperson stated that schools were relocating students when in fact at 1200, Brunswick County directed an early release of all schools in the 10-mile EPZ. Other information provided in response to other inquiries was superficial at best including, support to special needs population, the evacuation of Bald Head Island, and the rationale for evacuees to report to reception centers.

Rumor control information detailing public inquiries was gathered at the EOC's. However, this data was not requested or used by the spokesperson in the JIC. The ability to track trends and dispel rumors in a radiological emergency is another key function of the county spokesperson in the JIC. The spokesperson must be aware of this information so they can effectively respond to, and quell any rumors or misinformation that the public may have.

The county spokesperson should provide the public with specificity on actions being taken by the county to safeguard them. If the county representative publicizes erroneous information, the public is put at risk and the spokesperson will lose credibility.

Reference:

1. EEG, Activity 3, & 4.
2. NUREG-0654, E. 5.,7., G.3.a., G.4,a.,b.,c.
3. NC Radiological Emergency Response Plan
4. North Carolina Department of Crime and Public Safety Emergency Management Division Standard Operating Procedures for Fixed Nuclear Joint Information Centers

Recommendation:

1. Develop the framework for risk county PIO/JIC spokespersons' "smart" book outlining basic information, (e.g. zone populations, evacuation times, shelter locations and monitoring and decontamination activities, special populations, etc.) that needs to be readily available and develop the detailed "smart" book.

2. Revise Brunswick plans to include periodic situational updates to the county PIO's at the JIC. Revise County JIC procedures to ensure that county PIO's contact the EOC for situational updates prior to media briefings. .
3. Establish a County PIO program to ensure that the county spokespersons at the JIC are qualified and knowledgeable.
4. Establish a County public information personnel training program to include on-line public information courses provided by FEMA (e.g., IS-702.a – National Incident Management System (NIMS) Public Information Systems and through the State.
5. Review and revise County plans and procedures as necessary to include the type of information elected and appointed officials want to impart to their citizens during a radiological emergency at BNP and ensure they have a process for providing that information to the public whether or not a JIC has been established.

3.2.3.1.2 Backup Route Alerting

Emergency Public Information and Warning Capability Summary:

A Brunswick County Sheriff's Office patrol sergeant was briefed on the route to be travelled for backup route alerting in the event of a (simulated) failure of siren B32, and was provided a map and the required message for reading. He was also briefed on the use, self reading intervals, and dose limits indicated for a self-reading dosimeter (SRD), and was issued a simulated permanent-record dosimeter (PRD) by an Emergency Management staff member. The designated route was approximately 4 ½ miles in length. While travelling the route, the sergeant read the required message at specified intervals and upon meeting another major road and the SRD was checked at the required 15-minute intervals. The travel speed was slow enough to ensure that a complete message could be heard within the broadcast area. The total time elapsed between initial briefing start and route completion was 42 minutes, which was within the required 45-minute time interval. The SRD was returned along with the administrative exposure documentation to the EOC.

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

3.2.3.1.3 Traffic and Access Control Points

Public Safety and Security Response Capability Summary:
Brunswick County demonstrated its ability to perform this capability during out of sequence events the week of May 10th and during the plume exercise on August 31st. The interviews were conducted with representatives of the North Carolina State Highway Patrol (NCSHP) which has primary responsibility for staffing 20 traffic control points (TCP) and nine security road blocks, the Brunswick County Sheriff's Office (BCSO), the Southport Police Department and the Brunswick County Emergency Management Services of relocating risk schools and supporting congregate care centers and the JIC

traffic. All four agencies are represented in the EOC, which facilitates the timely coordination of law enforcement issues.

Senior personnel from the agencies discussed the coordination process whereby law enforcement requirements are identified in the EOC and how they would be met. The NCSHP provides initial support through its Troop B, which is responsible for the geographic area in which Brunswick is located. In recognition that the NCSHP requirements will exceed Troop B's resources, NCSHP places two Sergeants and 14 troopers on standby at each of the other seven troops upon indication of a deteriorating situation at BNP. These supplemental assets are forward deployed as required and report to a staging area in Brunswick County. If initial NCSHP resources are insufficient the BCSO is prepared to assist and both the BCSO and Southport Police Department are prepared to activate mutual aid agreements for additional resources if required.

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

3.2.3.1.4 Protective Actions for Schools

Citizen Evacuation and Shelter in Place Capability Summary:

This capability was demonstrated in two sessions, the first was during an interview on May 11, 2010 during which the Brunswick County Schools (BCS) procedures were discussed and the second was an observation of the coordination in the county EOC during the plume phase exercise on August 31, 2010. The interview involved the Administrative Assistant to the BCS Executive Director for Operations (EDO) and the BCS Director of Transportation (DOT). The EDO is the school district's lead in emergency response planning and the DOT is charged with maintaining the ability to relocate full populations of the four schools residing within the 10-mile EPZ. The BC Deputy Emergency Management Director also participated and added insights regarding the close coordination between BCS and EMA in planning for and executing school relocation. The interview underlined the fact that the BCS/EMA SOGs are well prepared, and convey responsibilities and required activities in a clear and concise manner. The district has chosen to be extremely prudent and initiate relocation vice other options in the event school is in session. The DOT has detailed movement plans and current points of contact; sufficient drivers are readily available, and law enforcement has been tasked with providing security for any move. The directions to the principals require them to supplement district guidance with internal procedures facilitating relocation.

For this capability the following REP criteria were MET: 3.c.2

3.2.3.1.5 Emergency Worker and Vehicle Monitoring and Decontamination

Hazardous Materials Response and Decontamination Capability Summary:

Brunswick County successfully demonstrated the ability to establish and operate emergency decontamination and monitoring of evacuees, workers, vehicles and equipment. The collaborative effort by Brunswick County Emergency Services, Brunswick County EMS and Leland Fire & Rescue Department is an example of their hard work and training.

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

3.2.3.1.6 Reception and Congregate Care Center

Hazardous Materials Response and Decontamination and Mass Care (Sheltering, Feeding and Related Services) Capability Summary:

This activity was conducted OOS and due to inclement weather this demonstration was relocated and conducted inside at the Leland Fire & Rescue Department vise North Brunswick High School. There was a major difference in the ARC schematic and how the facility would actually be set up for a Brunswick Nuclear Plant (BNP) incident. The orientation of the facility and the evacuee ingress and egress has to take into consideration evacuee flow through monitoring and decontamination stations. Radiological monitoring and decontamination (RM&D) of evacuees is the responsibility of the Brunswick County EMS. Per Brunswick County procedures, a decontamination action level of 300 counts per minute (CPM) is specified. Six evacuees were processed through the RM&D personnel stations. Only one was determined to be contaminated. Each evacuee required thirty to forty seconds to process through the portal monitor including the time to obtain basic personal data. The Ludlum Model 52 Portal Monitor is capable of processing one evacuee through the portal every 9 seconds including machine reset time. Using one portal monitor 120 evacuees can easily be processed per hour, with 1,400 evacuees in a 12-hour period (within the established requirement). This number could be increased with additional monitors available from State assets if necessary.

The Cape Fear Chapter, American Red Cross (ARC) demonstrated its preparations to activate and manage a general population shelter for evacuees during a radiological incident. Conversely, the county's ability to demonstrate the registration of evacuees not requiring shelter was not evident. The Brunswick County Department of Social Services (BCDSS) which is charged with the governmental lead for registration and sheltering did not participate in the demonstration. The ARC facility manager and volunteers discussed the preparation of ARC Initial Intake and Assessment Tool for those evacuees requiring sheltering. The facility manager used a detailed schematic to describe how the North Brunswick High School's available space would be used to accommodate the evacuees. Although the ARC survey rated the facility as sufficient for 820 evacuees, the plan and additional space allocations can accommodate the county plan's requirement to shelter 1320. The facility manager explained the feeding process which is accomplished by school district personnel, medical and mental health support in which the Department of Health provides support, and explained what resources would be obtained to meet any

translation requirements. The designated facility and designated personnel are well prepared to fulfill their shelter responsibilities.

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

3.2.3.1.7 Medical Services Drill

Triage and Pre-Hospital Treatment Capability Summary:

The Brunswick County Emergency Medical Services (EMS) and Dosher Memorial Hospital successfully demonstrated their ability to respond, treat, transport, and decontaminated a radiological contaminated accident victim. Brunswick EMS aided by Brunswick County Emergency Services (BCES) responded to a simulated accident scene involving an injured driver of a truck transporting radiological medical waste. The EMS crew followed all applicable procedures by indentifying the contamination, then taking the correct measures for personal protection, and treating and transporting the victim to Hospital.

The Hospital Emergency Manager (HEM) implemented a code yellow emergency and directed the Emergency Room (ER) staff to quickly prepare the decontamination room and notified the on duty Physician for the situation. The decontamination team frequently changed gloves after contact with the patient to help prevent any spread of contamination. They were periodically reminded to read their dosimetry and report any readings. The team worked well together, with each member understanding their roles. The priority of the victims injuries were considered during the decontamination process.

The EMS crew and Hospital Staff used appropriate medical care and contamination control. Sufficient quantities of supplies and equipment were available during the treatment and decontamination of the accident victim. All actions performed in this MS-1 Drill were in accordance with appropriate plans and procedures. The County agencies and private organizations supporting the BNP established that they were fully capable of effectively providing emergency response support to a radiological contaminated patient.

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

3.2.3.2 New Hanover County, North Carolina

3.2.3.2.1 Emergency Operations Center

Emergency Operations Center Management Capability Summary:

The New Hanover County Emergency Management Director and his staff demonstrated the capability to provide multi-agency coordination for incident management by activating and operating their EOC for this exercise.

The Public Safety Communications Center (PSCC) was the county's warning point and was a modern facility and that had redundant communications systems which easily handled the notification and mobilization of EOC staff and receiving messages. In accordance with the extent of play all EOC staff were pre-positioned for this exercise. The Emergency Management Director served as the EOC Manager (EOCM) and briefed the EOC staff as soon as there was an update to the exercise.

The EOC was setup by ESF groupings and all ESFs were present. The EOCM and his assistant exhibited good command and control throughout the exercise. The assistant also served as the radiological safety officer and insured all computers and telephone systems were properly working. If there were any problems he contacted the proper ESF and had the problem quickly resolved. The EOCM and his assistant communicated with the State and Brunswick County concerning PARs and PADs. The EOCM and his assistant disagreed with the State's PAD and discussed it with the State. The Kure Beach Fire Chief (acting in behalf of his city council) informed the EOCM that he would order the evacuation of his city without the State's approval, and then posted an evacuation notice on WebEOC without a formal EAS message or press release to the public. This occurred at the end of the exercise and was not implemented.
All ESFs were provided with multiple methods for communicating with other agencies. These included; computers at each location with WebEOC loaded and instructions on entering the system and navigating the program, multiple telephones, radios and a RACES operator were available, the PSCC had multiple communication systems and was properly staffed to provide assistance if needed.

Although all protective action decisions were not fully activated or implemented due to the exercise timeframe, the EOCM and his staff clearly demonstrated they had the knowledge and ability to successfully complete the necessary actions. The EOCM had ESF personnel taking actions to assist special needs personnel, re-locate schools, setup reception centers and emergency worker decontamination centers. The EOCM did not agree with the prescribed PAD and subsequently the Fire Chief of Kure Beach ordered the evacuation of his city without approval from the State.

The communication systems in the EOC and the PSCC were more than capable of maintaining connectivity with internal and external agencies and organizations. WebEOC was used internally to issue tasks and track their completion.

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

Emergency Public Information and Warning Capability Summary:

Sirens, EAS messages and NWS radio messages were utilized to provide emergency warning to the public. The Sirens were activated from the Brunswick County EOC, and the EAS and NWS messages were sent from the North Carolina SEOC. Siren status forms were sent via fax to the New Hanover County EOC to confirm activation of sirens.

New Hanover County was unable to properly manage public information. Prior to the activation of the JIC at 0943, the PIO position was unoccupied and therefore, no information was released to the media. At 1003, A PIO reported to the EOC and maintained close communications with his counterpart located in the JIC. He did not, however, obtain pertinent information from EOC staff to provide to the JIC, nor did he have access to WebEOC. All information was received from staff briefings provided by the EOC Director. The PIO did not track public inquiries or monitor media coverage of the incident (see ARCA 08-10-5.b.1-A-03).

The Emergency Public Information Center (EPIC) staff provided public rumor control throughout the exercise. The EPIC staff utilized the exercise for training and conducted two shift changes, rotating a total of 16 staff members throughout the exercise. This provided both shifts and the backup volunteers an opportunity to improve their abilities using WebEOC and to familiarize themselves with plans and procedures. They stayed abreast of incident status by monitoring the significant events tab in WebEOC. They obtained accurate information for callers and referred them to appropriate sources. The EPIC staff did not coordinate any information with the PIO nor did the PIO contact EPIC regarding rumor control. The calls were kept in a log on WebEOC that was only visible to EPIC staff. Although certain trends and rumors were identified, that information was never shared with the PIO, JIC or EOC staff. (see ARCA 08-10-5.b.1-A-03)

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

Observation: (**Area Requiring Corrective Action)** 08-10-5.b.1-A-03. Similar to the Brunswick PIO, the New Hanover County PIO in the JIC was not familiar with his responsibilities and did not publish any news releases.

Analysis: The county PIO in the JIC was ill-prepared to fulfill their responsibility as a representative of the elected and appointed leadership. The spokesperson was unfamiliar with the County radiological emergency response plan and procedures that would be implemented to safeguard the citizens in the event of an incident at BNP. Further, the PIO was not sufficiently updated by their jurisdiction and did not have supporting materials and job aides to facilitate performance of their spokesperson responsibilities.

Key tenets of the Joint Information System (JIS) did not seem to be considered and were not evident in counties' procedures pertaining to activities prior to, or following JIC activation. The county representative was a spokesperson representing their elected and appointed officials before the media and therefore, needed to be knowledgeable of county radiological emergency response plans and procedures, as well as be cognizant of ongoing activities in their jurisdictions. At a, minimum they need to be able to address basic facts concerning a radiological emergency, such as emergency planning zone populations, evacuation routes and times, procedures for taking care of the special needs populations, protective

actions for schools and activities at reception centers. This information could be gathered into a standard briefing book for their use. The spokesperson also needs to be kept up to date on all actions taken to protect the health and safety of the public in their counties.

The Alert ECL was declared at 0826 and the State did not assume direction and control until 1230. During that time the County representative was silent on any actions that had been taken to protect their citizens during this (simulated) incident at BNP. Following their arrival at the JIC the State PIO staff prepared and issued 12 news releases.

Rumor control information detailing public inquiries was gathered at the EOC by the EPIC volunteers. However, this data was not requested or used by the spokesperson in the JIC. The ability to track trends and dispel rumors in a radiological emergency is another key function of the county spokesperson in the JIC. The spokesperson must be aware of this information so they can effectively respond to, and quell any rumors or misinformation that the public may have.

The county spokesperson should provide the public with specificity on actions being taken by the county to safeguard them. If the county representative publicizes erroneous information, the public is put at risk and the spokesperson will lose credibility.

Reference:

1. EEG, Activity 3, & 4.
2. NUREG-0654, E. 5.,7., G.3.a., G.4,a.,b.,c.
3. NC Radiological Emergency Response Plan
4. North Carolina Department of Crime and Public Safety Emergency Management Division Standard Operating Procedures for Fixed Nuclear Joint Information Centers

Recommendation:

1. Develop the framework for risk county PIO/JIC spokespersons' "smart" book outlining basic information, (e.g. zone populations, evacuation times, shelter locations and monitoring and decontamination activities, special populations, etc.) that needs to be readily available and develop the detailed "smart" book.
2. Revise New Hanover plans to include periodic situational updates to the county PIO's at the JIC. Revise County JIC procedures to ensure that county PIO's contact the EOC for situational updates prior to media briefings. .
3. Establish a County PIO program to ensure that the county spokespersons at the JIC are qualified and knowledgeable.
4. Establish a County public information personnel training program to include on-line public information courses provided by FEMA (e.g., IS-702.a – National Incident Management System (NIMS) Public Information Systems and through the State.

5. Review and revise County plans and procedures as necessary to include the type of information elected and appointed officials want to impart to their citizens during a radiological emergency at BNP and ensure they have a process for providing that information to the public whether or not a JIC has been established.

3.2.3.3 Backup Route Alerting

Emergency Public Information and Warning Capability Summary:

A fixed siren system is the primary means of notification for the public if an emergency is declared at BNP. In the event of a siren failure, the NHCEM Director would verify which of the six subzones of the EPZ was affected by using a GIS siren map overlay. Once identified, the responsible agency would then be notified of the predetermined route to clear. For the purpose of this evaluation subzone K-3 was selected.

This capability was demonstrated through discussion with members of the Federal Point Volunteer Fire Department. The fire crew clearly understood their responsibilities and duties in the event of a siren failure in New Hanover County. Their professionalism and candor was evident during this interview to include their knowledge of the dosimetry and radiological exposure control measures.

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

3.2.3.3.1 Traffic and Access Control Points

Public Safety and Security Response Capability Summary:

The NCSHP and the New Hanover County Sheriff's Office successfully demonstrated procedures to establish and maintain TCPs and provide support through interviews at the Brunswick County EOC. Personnel interviewed were knowledgeable of duties to include traffic routing, impediment removal, dosimetry, KI, turn back values and exposure records.

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

3.2.3.3.2 Emergency Worker and Vehicle Decontamination

Hazardous Materials Response and Decontamination Capability Summary:

The New Hanover County Department of Emergency Management (NHCEM) and the City of Wilmington Fire Department (WFD) successfully demonstrated the ability to activate, mobilize and conduct radiological monitoring and decontamination (RM&D) operations in support of the BNP. The RM&D operations were setup in the east parking

lot of the Trask Coliseum. This site offers adequate space with clearly defined perimeters for access control. The equipment, supplies and dosimetry were sufficient to support emergency operations. This includes the appropriate levels of personal protective equipment (PPE) which was donned by the emergency workers (EW's). The monitoring team conducted operational checks on the survey meters and demonstrated the proper use of the instruments. All workers were knowledgeable in exposure control and were well trained in their roles and positions in support of these operations.

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

3.2.3.3.3 Reception and Congregate Care Center

Hazardous Materials Response and Decontamination and Mass Care (Sheltering, Feeding and Related Services) Capability Summary:

The capability to assess and manage the consequences of a radiological release was demonstrated by New Hanover County paid and volunteer agencies. Wilmington Fire Department (WFD) personnel began the setup of the radiological monitoring and decontamination (RM & D) area at Trask Coliseum. The vehicle receiving area was clearly marked with traffic cones and signs directing drivers to the initial monitoring point. A vehicle decontamination area with decontamination equipment was established in an area away from the monitoring point. Setup of the station was completed in accordance with the diagram shown in the SOG. The reception area inside the Trask Coliseum was staffed by personnel from the volunteer organization Response Emergency Management Organization (REMO). Two portal monitors were setup in the entrance way which insured that everyone entering was monitored. The floors inside the coliseum were covered with protective material and the walkways leading from the portal monitors to the decontamination facilities were also covered and the route lined with barrier rope and signs. Both WFD and REMO personnel had proper dosimetry and survey instruments to perform their assigned functions. All equipment was within calibration parameters and was properly operationally checked prior to being put into service. WFD and REMO personnel were knowledgeable of their dosimetry requirements and limits.

Two WFD monitors displayed proper survey techniques while surveying two emergency vehicles and two (simulated) evacuee vehicles. The monitors were knowledgeable of survey requirements and contamination limits. WFD personnel assigned to decontaminating vehicles displayed good techniques and contamination control. Water runoff was controlled and WFD personnel insured water flowed away from their station. REMO personnel inside Trask Coliseum also demonstrated their knowledge of surveying personnel, contamination limits, and conducting personnel decontamination procedures.

The New Hanover Department of Social Services (DSS) and Cape Fear Chapter of the American Red Cross (ARC) demonstrated its preparations to activate and manage a general population shelter for evacuees during a radiological incident. The New Hanover County Department of Social Services (DSS), which is charged with the governmental

lead for registration and sheltering, participated in the demonstration as well as representatives of the Cape Fear Chapter of the ARC. The ARC Shelter Manager discussed the preparation of the facility for those evacuees requiring sheltering. The facility manager used a schematic to describe how the Trask Coliseum's available space would be used to accommodate the evacuees. Using ARC standards, the facility can accommodate for 440 evacuees. The facility manager explained the feeding process, which is accomplished by establishing a Red Cross Canteen using contractor support. The designated facility and personnel are well prepared to fulfill their shelter responsibilities but the capability could be enhanced by the following improvements.

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

Section 4: Conclusion

Officials and representatives from the State of North Carolina; the risk counties of Brunswick and New Hanover, North Carolina; 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 the exercise a success.

FEMA wishes to acknowledge the exceptional efforts of the many individuals who planned, prepared for and participated in this exercise. Protecting the public health and safety is the full-time job of some of the exercise participants and an additional assigned responsibility for others. Still others have willingly sought this responsibility by volunteering to provide vital emergency services to their communities.

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

During this exercise, FEMA identified the following three Area's Requiring Corrective Action (ARCA's).

1. (08-10-5.a.1-A-01) Issue Emergency Warnings: In Brunswick County, the initial sounding of the sirens failed, EAS message #1 was transmitted prior to the sounding of the sirens. The correct siren system settings were confirmed at the GE ECL and the sirens were (silent) sounded successfully, followed by the EAS Message. Criterion Met: 5.a.1.
2. (08-10-5.b.1-A-02) Emergency Public Information and Warning: The Brunswick county representative in the JIC was not prepared to act as media spokesperson. Once the JIC was activated the county PIO did not publish or release any news releases. Criterion Not Met: 5.b.1.
3. (08-10-5.b.1-A-03) Emergency Public Information and Warning: The New Hanover county representative in the JIC was not prepared to act as media spokesperson. Once the JIC was activated the county PIO did not publish or release any news releases. Criterion Not Met: 5.b.1.

FEMA will work with the State to determine the schedule of corrective actions for the ARCAs. Corrective actions will be demonstrated during the 2012 BNP REP Evaluated Exercise, scheduled for August 7, 2012.

Appendix A: Schedule of Corrective Actions

Capability	Area for Improvement	Recommendation	Corrective Action Description	Primary Responsible Agency	Agency POC	Start Completion Date
5.b.1						

Appendix B: Laboratory of Public Health (For Training Only)

Facility Assessment:

A baseline evaluation was conducted for the North Carolina State Laboratory of Public Health on August 1, 2010, in conjunction with the BNP exercise. The laboratory is located in the Bath Building at 306 North Wilmington Street, Raleigh, North Carolina.

There is sufficient space for operations and functions of the laboratory staff, including a Radiochemistry Laboratory Preparation Area on the fourth floor (Room 417), and the radioanalysis Count room on the first floor (Room 101). Floor plan diagrams are available indicating the layout and equipment locations in each area.

A listing of radioanalysis equipment Radiochemistry Equipment is available. Geometries are established for 0.5 liter, 1.0 liter, 4 liter, 47mm particulate filter and Hi-Q charcoal canisters. All calibration standards were verified as National Institute of Standards and Technology (NIST) traceable. Additional equipment for sample storage included an Elliott Williams Walk-In Cooler (~30' x 10') and a Thermo Lockable Refrigerator. The Radiation Safety Officer (RSO) estimated about 1,000 samples could be stored in the walk-in cooler and 100 in the refrigerator.

Lighting is sufficient within the facility, including ceiling-mounted dual fluorescent light fixtures. Restroom facilities are available on each floor of the building. Adequate ventilation (heating and cooling) was available throughout the building. In addition to routine grid power, battery backups were available for all counting equipment, and a diesel generator was available for backup power for the building. The RSO stated the diesel generator capacity was sufficient for the entire Bath Building.

In summary, the North Carolina State Laboratory of Public Health had adequate resources for conducting radioanalysis of field samples in support of radiological emergency preparedness. However, there were no emergency procedures in coordination with RPS available. Currently, only environmental sample procedures are in place.

Public Health Laboratory Testing Capability Summary:

The Radiochemistry Laboratory, a branch of the Environmental Services Unit of the State Laboratory of Public Health (SLPH), was evaluated out of sequence and for training purposes only at 0800 on August 31, 2010. SLPH is part of the Division of Public Health in the North Carolina Department of Health and Human Services. The laboratory Radiation Safety Officer (RSO) stated that the lab is scheduled to move to a new building being constructed on Reedy Creek Road at the North Carolina State Fairground in 2012.

The lab provides analytical support for monitoring levels of naturally-occurring and man-made radionuclides in various sample media. It is equipped to analyze air sample filters and cartridges, and various environmental samples such as milk, surface and ground water, soil,

vegetation, and food crops. Approximately 2500-2700 samples are submitted to the lab each year.

The lab maintains a radioactive materials license issued by the NC Department of Environment and Natural Resources (DENR). Possession limits for most radionuclides in "any form" are in the range of 10 to 20 microcuries and their use is limited to instrument calibration and QA/QC checks.

Analytical equipment available in the counting lab located on the first floor of the building includes gross alpha/beta gas-proportional counters, liquid scintillation counters and high-purity germanium (HPGe) detectors for gamma spectroscopy. The lab uses Canberra's Apex and Genie 2000 software for gamma spectroscopy analysis. The software's radionuclide library contains all nuclides expected to be released during an accident at a nuclear power plant. The gamma spectroscopy systems are calibrated for 0.5, 1 and 4.0 liter Marinelli container geometries. Daily quality control checks are performed on all the counting instruments using NIST-traceable sources. The RSO maintains a file of source certificates and produced those for the 0.5, 1 and 4.0 liter mixed gamma sources, the HiQ charcoal filter source and the 47mm glass fiber filter source. All counting instruments are equipped with uninterruptable power supplies, and the building is equipped with an emergency generator.

The RSO described the sample receipt process. When a courier arrives at the lobby, the laboratory is notified by the receptionist. Laboratory personnel come to the lobby, collect the sample and associated paperwork, and sign the chain-of-custody log. (This was also demonstrated when a DENR courier delivered a vegetation sample and an air filter to the lab at 0840.) The sample is then taken up to the sample receipt and preparation lab on the fourth floor. The sample is monitored using a Ludlum survey meter with a "pancake" probe. If the survey reading is 100 counts per minute (CPM) or more above background, appropriate personal protective equipment (PPE) and dosimetry is donned and a wipe of the outside is taken to check for contamination.

The sample is recorded on a master log sheet, assigned a sample identification (ID) number and entered into the laboratory's sample database. The RSO stated that samples coming from RPS would already be prepared for counting, except for air filters that would have to be mounted on a planchet. The sample is then taken down to the counting lab for analysis. Sample count times used for environmental samples are relatively long (e.g. 3 hours for gamma spectroscopy analysis of most samples) and there are no procedures in place specifically addressing the analysis of higher activity samples which may be received during a nuclear power plant incident. A completed analysis report is generated and reviewed by the RSO. The report is filed in the lab and a copy is sent to RPS. The results are also entered into a database that can be accessed by RPS. During this evaluation, the vegetation sample provided by DENR was counted for a shortened period (15 minutes) and a Gamma Spectrum Analysis report was generated.

For this capability the following REP criteria were FOR TRAINING ONLY: 1.b.1 and 4.c.1

Appendix C: Exercise Timeline

Emergency Classification Level or Event	Time Utility Declared	Time That Notification Was Received or Action Was Taken					
		NC SEOC	Eastern Branch	Radiation Protection, Dose Assessment	JIC	Brunswick County EOC	New Hanover County EOC
Unusual Event	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alert	0826	0836	0915	0857	N/A	0859	0905
Site Area Emergency	1114	1128	1140	1128	1120	1133	1134
General Emergency	1227	1241	1229	1247	1235	1240	1255
Simulated Rad. Release Started	1108	1128	1145	1128	1120	1108	N/A
Simulated Rad. Release Terminated	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	1208	N/A
Facility Declared Operational	0915	0833	1000	0835	0945	0929	0800
Exercise Terminated	1400	1359	1410	1418	1400	1400	1407
Declaration of Emergency: State		1201	1204	N/A	1215	1201	N/A
County		1100	N/A	N/A	N/A	1100	1134
State Assumes Direction and Control		1231	1234	N/A	1230	1231	1231
Early Precautionary Actions: *School Dismissal*		N/A	1233	N/A	N/A	1200	1140
1st Protective Action Decision: Stored Feed and Water		1147	1253	N/A	1150	1142	1142
1st Siren Activation		1147	1235	N/A	1147	1147/1158	1147
1st EAS Message		1152	1245	N/A	1152	1152	1152
1st NWS Message		1157	N/A	N/A	1157	1157	1157
2nd Protective Action Decision: Evacuate Zones: A, B, G, H, J, K, F Shelter in Place Zones: C, D, E, L, M, N		1246	1250	N/A	1255	1255	1257
2nd Siren Activation		1300	1324	N/A	1300	1300/1302	1302
2nd EAS		1305	1330	N/A	1305	1305	1307
2nd NWS Message		1310	N/A	N/A	1310	1310	1312
KI Ingestion Decision: Emergency Workers		1147	1147	1147	1147	1205	1205
General Public		N/A	N/A	N/A	N/A	N/A	N/A

Appendix D: Exercise Evaluator and Assignments

Brunswick Nuclear Power Plant (BNP) 2010 REP Exercise			
Location	**FEMA Evaluation Team**	**Criterion**	**Capability**
Joint Operations			
Emergency Operations Facility	Robert Trojanowski (NCR)	1.a.1,1.c.1, 1.d.1, 1.e.1, 2.b.1	EOC Management
Joint Information Center	Bill Larrabee (Lead), Joe Inman & JT Ackerman	1.a.1, 1.c.1,1.d.1, 1.e.1, 5.b.1	Emergency Public Information and Warning
State of North Carolina			
State Emergency Operations Center	Gerald Mclemore (Lead), Alex Sera, Bob Lemeshka, and Robert Nash (Liaison)	1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2, 5.a.1, 5.b.1	EOC Management, Emergency Public Information and Warning
Eastern Branch Office	Ronald Shaw	1.a.1, 1.c.1, 1.d.1, 1.e.1	EOC Management
Radiation Protection Section, Dose Assessment (SEOC)	William B. McRee (Lead)	1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.1, 2.b.2, 4.a.2	Weapons of Mass Destruction (WMD) and Hazardous Materials (HazMat) Response and Decontamination
FMT Direction and Control (SEOC)	John Fill	1.d.1, 1.e.1, 2.a.1, 4.a.2	Weapons of Mass Destruction (WMD) and Hazardous Materials (HazMat) Response and Decontamination
Radiological Field Monitoring Teams (Red & Blue)	Mario Vigliani and Ron Biernacki	1.a.1,1.d.1, 1.e.1, 3.a.1, 3.b.1, 4.a.1, 4.a.3	Weapons of Mass Destruction (WMD) and Hazardous Materials (HazMat) Response and Decontamination
Mobile Laboratory	Keith Earnshaw	1.a.1,1.d.1,1.e.1, 3.a.1, 4.c.1	Public Health Laboratory Testing

Laboratory Of Public Health (FOR TRAINING ONLY)	William B. McRee and John Fill	1.b.1, 4.c.1	Public Health Laboratory Testing
Marine Warning & Water Way Clearance	Robert Spence (Lead), Kevin Keyes, Michael Dolder, Bill Larrabee, Matt Bradley, Robert Nash, Lisa Rink	1.a.1, 1.c.1, 1.d.1, 3.a.1, 3.b.1, 5.a.3	Emergency Public Information and Warning
NWS Wilmington	Lisa Rink	1.d.1,1.e.1, 5.a.1, 5.b.1	Emergency Public Information and Warning
Brunswick County			
Emergency Operations Center (EOC)	Michael Dolder (Lead), Bud Iannazzo, John Sandberg and Walt Cushman	1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2, 2.c.1, 3.a.1, 3.b.1, 3.c.1, 3.c.2, 3.d.1, 3.d.2, 5.a.1, 5.b.1	EOC Management, Emergency Public Information and Warning
Protective Actions for Schools	Bill Larrabee and Robert Spence	3.c.2	Citizen Evacuation & Shelter in Place
Backup Route Alerting	John Sandberg	3.a.1, 5.a.3	Emergency Public Information and Warning
Traffic Control Points	Michael Dolder, Bill Larrabee and Robert Nash	1.d.1, 1.e.1, 3.a.1,3.b.1, 3.d.1, 3.d.2	Public Safety and Security Response
Reception and Congregate Care Center – North Brunswick High	Michael Dolder, Bill Larrabee and Robert Spence	1.e.1, 3.a.1, 6.a.1, 6.c.1	Weapons of Mass Destruction (WMD) and Hazardous Materials (HazMat) Response and Decontamination, Mass Care
Emergency Worker & Vehicle Decontamination – Leland Fire Department	Michael Dolder, Bill Larrabee and Robert Spence	1.e.1, 3.a.1, 6.a.1, 6.b.1	Weapons of Mass Destruction (WMD) and Hazardous Materials (HazMat) Response and Decontamination

Medical Services Drill – Dosher Memorial Hospital	Robert Spence and Robert Nash	1.e.1, 3.a.1, 6.d.1	Triage & Pre-Hospital Treatment
New Hanover County			
Emergency Operations Center	Joe Harworth (Lead), Matt Bradley, Kevin Hicks and Robert Spence	1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2, 2.c.1, 3.a.1, 3.b.1, 3.c.1, 3.c.2, 3.d.1, 3.d.2, 5.a.1, 5.b.1	EOC Management, Emergency Public Information and Warning,
Backup Route Alerting	Robert Spence	3.a.1, 5.a.3	Emergency Public Information and Warning
Traffic Control Points	Matt Bradley and Lisa Rink	1.d.1, 1.e.1, 3.a.1,3.b.1, 3.d.1, 3.d.2	Public Safety and Security Response
Reception and Congregate Care Center – Trask Coliseum	Joe Harworth, Michael Dolder and Robert Spence	1.e.1, 3.a.1, 6.a.1, 6.c.1	Weapons of Mass Destruction (WMD) and Hazardous Materials (HazMat) Response and Decontamination, Mass Care
Emergency Worker & Vehicle Decontamination	Robert Spence	1.e.1, 3.a.1, 6.a.1, 6.b.1	Weapons of Mass Destruction (WMD) and Hazardous Materials (HazMat) Response and Decontamination

Appendix E: 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
BCDSS	Brunswick County Department of Social Services
BCES	Brunswick County Emergency Services
BCS	Brunswick County Schools
BNP	Brunswick Nuclear Power Plant
CCPS	Crime Control and Public Safety
CFR	Code of Federal Regulations
CMC	Corporate Media Center
CPM	Counts Per Minutes
DEMD	Deputy Emergency Management Director
DENR	Department of Environment and Natural Resources
DFL	Derived Intervention Levels
DHS	Department of Homeland Security
DNR	Department of Natural Resources
DOC	Department of Commerce
DOE	Department of Energy
DOI	Department of the Interior
DOT	Department of Transportation
DPH	Department of Public Health
DRD	Direct Reading Dosimeter
DSS	Department of Social Services
EAL	Emergency Action Level
EAS	Emergency Alert System
EBO	Eastern Branch Office
ECL	Emergency Classification Level
EDO	Executive Director For Operations
EEG	Exercise Evaluation Guide
EMA	Emergency Management Agency
EMD	Emergency Management Director

Acronym	Meaning
EMITS	Emergency Management Information Tracking System
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EOPA	Extent of Play Agreement
EPA	Environmental Protection Agency
EPIC	Emergency Public Information Center
EPIP	Emergency Plan Implementing Procedure
EPZ	Emergency Planning Zone
ER	Emergency Room
ER	Emergency Room
ERC	Emergency Response Coordinator
ERDS	Emergency Response Data System
ERP	Emergency Response Plan
ESF	Emergency Support Function
EW	Emergency Worker
EWD	Emergency Worker Decontamination
EXPLAN	Exercise Plan
FEMA	Federal Emergency Management Agency
FEOC	Forward Emergency Operations Center
FMT	Field Monitoring Team
FOUO	For Official Use Only
FRMAC	Federal Radiological Monitoring and Assessment Center
FTL	Field Team Leader
GE	General Emergency
GIS	Geographic Information System
GM	Geiger-Muller (detector)
GPS	Geographic Positioning System
HAZMAT	Hazardous Materials
HEM	Hospital Emergency Manager
HO	Health Order
HQ	Headquarters
HSEEP	Homeland Security Exercise and Evaluation Program
IC	Incident Commander
ICS	Incident Command System

Acronym	Meaning
IMT	Incident Management Team
IP	Improvement Plan
IPZ	Ingestion Pathway Zone
IRG	Information Response Group
IRIS	Internet Routed Information System
JIC	Joint Information Center
KI	Potassium Iodide
LP-1	Local Primary -1
MOC	Mobile Operations Center
MOTSU	Military Ocean Terminal Sunny Point
MOU	Memorandum of Understanding
mR	milliroentgen
mR/h	milliroentgen per hour
MRL	Mobile Radiological Laboratory
NAWAS	National Warning System
NC	North Carolina
NCEM	North Carolina Emergency Management
NCHPS	North Carolina Health Physic Society
NCMP	North Carolina Marine Patrol
NCWRC	North Carolina Wildlife Resources Commission
NGO	Non-Governmental Organization
NHCEM	New Hanover County Emergency Management
NIMS	National Incident Management System
NOAA	National Oceanic and Atmosphere
NOUE	Notification of Unusual Event
NPP	Nuclear Power Plant
NRC	Nuclear Regulatory Commission
NUREG-0654	NUREG-0654/FEMA-REP-1, Rev. 1, *"Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980*
NWS	National Weather Service
OOS	Out-of-Sequence
ORO	Offsite Response Organization
PA	Public Announcement
PAD	Protective Action Decision

Acronym	Meaning
PAG	Protective Action Guide
PAR	Protective Action Recommendation
PIO	Public Information Officer
PPE	Personal Protective Equipment
PRD	Permanent Record Dosimetry
PSCC	Public Safety Communications Center
R	Roentgen
R/h	Roentgen(s) per hour
RAC	Regional Assistance Committee
RACES	Radio Amateur Civil Emergency Service
REA	Radioactive Emergency Area
REM	Roentgen Equivalent Man
REMO	Radiation Emergency Management Organization
REP	Radiological Emergency Preparedness
REPP	Radiological Emergency Preparedness Program
RERP	Radiological Emergency Response Plan
RM&D	Radiological Monitoring and Decontamination
RO	Radiological Officer
RPS	Radiation Protection Section
SAE	Site Area Emergency
SEOC	State Emergency Operations Center
SERT	State Emergency Response Team
SHP	State Highway Patrol
SIMCELL	Simulation Cell
SIP	Shelter-in-Place
SMRAP	Southern Mutual Radiological Assistance Plan
SOG	Standard Operating Guide
SOP	Standard Operating Procedure
SRD	Self-Reading Dosimeter
SSS	Selective Signaling System
TCL	Target Capabilities List
TCP	Traffic Control Point
TEDE	Total Effective Dose Equivalent
THD	Technological Hazard Division
TLD	Thermoluminescent dosimeter

Acronym	Meaning
TOREV	Team Of Radiological Volunteers
UNC-W	University of North Carolina - Wilmington
USCG	United States Coast Guard
USDA	U.S. Department of Agriculture
UTL	Universal Task List
VFD	Volunteer Fire Department
WFD	Wilmington Fire Department

Appendix F: Exercise Locations

Exercise Locations	Out of Sequence Locations
SEOC 116 West Jones Street Raleigh, North Carolina 27699	Marine Warning/TCP Interviews Brunswick Nuclear Power Plant Visitor Center 8470 River Road SE Southport, North Carolina 28461
Brunswick County EOC 3325 Old Ocean Highway, Building C Bolivia, North Carolina 28422	Trask Coliseum UNC Wilmington 601 South College Rd Wilmington, NC28403
New Hanover County EOC 230 Government Center Drive, Ste 115 Wilmington, North Carolina 28403	North Brunswick High School 114 Scorpion Drive Leland, North Carolina 28451
NCEM Eastern Branch Office 3802 Highway 58 North, Suite B Kinston, North Carolina 28504	Dosher Memorial Hospital 924 North Howe St Southport, North Carolina 28461
Joint Information Center Brunswick Community College 50 College Road, NE Bolivia, North Carolina 28422	
Mobile Laboratory North Carolina National Guard Facility-Wilmington Airport 2412 Infantry Road Wilmington, North Carolina 28405	
National Weather Service 2015 Gardner Drive Wilmington, North Carolina 28405	

Appendix G: Exercise Planning Team Leadership

Agency	Name	Email	Phone
DHS/FEMA Region IV	Robert Spence		
DHS/FEMA Region IV	Kevin Keyes		
Progress Energy	Kent Croker		
Progress Energy	Mike Kinney		
NCEM	Carolyn Freitag		
NCEM	Steve Payne		
NCEM	Cory Johnson		
NCEM	Paula Brown		
NCEM	Cory Grier		
BCES	Anthony Marzano		
BCES	Scott Garner		
BCES	Heather Heigl		
NHCEM	Warren Lee		
NHCEM	Wayne Pearce		
NC DENR	William Jefferies		
NC WRC			
NWS	Steve Pfaff		
NC SHP			
NC MP			
USCG			

Appendix H: Extent of Play Agreement

Brunswick Nuclear Plant Full Participation Exercise
2010 Extent of Play Agreement

A. General Information

- Activities will be conducted as follows:
  - Off-Scenario – May 10 – 14, 2010
  - Graded exercise - Tuesday, June 22, 2010.

- All activities must be completed as they would be in an actual emergency, unless otherwise indicated in the extent of play agreement.

- Siren activation at Site Area Emergency and General Emergency will be simulated by using an actual Silent Test.

B. Other Exercise Details

- State and county participants **will be** allowed to pre-position at exercise locations. OROs effectively demonstrated activation during the 2008 exercise.

- Utility will provide a liaison to State EOC, Brunswick and New Hanover County EOCs.

- State or county EM personnel will accompany federal evaluators to all Off-Scenario demonstrations.

- A State Controller and Federal Evaluator will be located in the State EOC, Brunswick EOC, New Hanover County EOC, the JIC, and at off-scenario demonstrations and field activities.

- Exercise participants will have the opportunity to remediate and re-demonstrate activities immediately upon identification of the error and the approval of the federal evaluator. The controller will consult with the federal evaluator and conduct retraining if necessary before the re-evaluation.

- All demonstrations will be in accordance with the approved Extent of Play Agreement.

- Exceptions to Extent of Play standard, as listed in DHS/FEMA Interim REP Manual, August 2002, will be listed in this document.

C. Scenario

- Scenario will be developed by the Utility in consultation with the State using DHS/FEMA guidelines.

D. Meeting Times & Locations

I. Federal Evaluator Briefing:

New Hanover County EOC
220 Government Drive
Wilmington, North Carolina 28405

Date & Time: Monday, June 21, 2010 at 2:00 p.m.

II. State & County Internal Critique:

New Hanover County EOC
220 Government Drive
Wilmington, North Carolina 28405

Date & Time: Wednesday, June 23, 2010 at 2:00 p.m.
(Determination of need for this meeting will be made immediately following exercise termination via the Decision Line)

III. Participant's Out Brief:

Brunswick Nuclear Plant Visitor Center
8470 River Road, SE
Southport, North Carolina 28461

Date & Time: Thursday, June 24, 2010 at 10:00 a.m.

IV. Public Out Brief:

Brunswick Nuclear Plant Visitor Center
8470 River Road, SE
Southport, North Carolina 28461

Date & Time: Thursday, June 24, 2010 at 11:00 a.m.

1. EMERGENCY OPERATIONS MANAGEMENT

1.a. – Mobilization

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

EXTENT OF PLAY:

- **Participants**: NC SERT, Brunswick and New Hanover Counties

- Alert rosters will be provided to DHS/FEMA evaluators. Players will discuss alert notification procedures with the evaluator.

- Radiation Protection Section's Mobile Laboratory and other field activities will be conducted from the NC National Guard Facility near the Wilmington International Airport in Wilmington, NC.

1.b. – Facilities

Criterion 1.b.1
Facilities are sufficient to support the Emergency Response. **(NUREG-0654, H.)**

EXTENT OF PLAY:
Participants: None

State and Brunswick County exercise evaluation criterion baseline established during 2002 exercise. New Hanover County was baseline was established in 2006.

1.c – Direction and Control

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

EXTENT OF PLAY:

- **Participants**: NC SERT, Brunswick and New Hanover Counties

- Brunswick County is the lead-coordinating county until Site Area Emergency. Following the silent testing of sirens and issuance of the first PAD recommendations to the public, Brunswick County will request the State assume direction and control.

- The State of North Carolina, Brunswick and New Hanover Counties will coordinate decisions and keep each other advised on actions taken throughout the exercise.

1.d – Communications Equipment:

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

EXTENT OF PLAY:

- **Participants:** NC SERT, Brunswick and New Hanover Counties

1.e – Equipment and Supplies to Support Operation:

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

EXTENT OF PLAY:

- Availability and currency of KI will be verified by DHS/FEMA Staff Assistance Visit to the EPZ Counties.

- Dosimeters will be inspected during DHS/FEMA Staff Assistance Visit to the EPZ Counties.

Brunswick County

Staff Assistance Visit was conducted February 17, 2010.

New Hanover County

Staff Assistance Visit was conducted February 17, 2010.

2. PROTECTIVE ACTION DECISION MAKING

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).

EXTENT OF PLAY:

- **Participants:** NC SERT, Brunswick and New Hanover Counties.
- Personnel at the State, Brunswick and New Hanover County EOCs will discuss the decision making process and distribution procedures for emergency worker KI with the federal evaluator.
- No distribution of actual or simulated KI will be accomplished

2.b - Radiological assessment and protective action recommendations and Decisions for the Plume Phase of the Emergency:

Criterion 2.b.1:

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

EXTENT OF PLAY:

- **Participants:** NC SERT, Brunswick and New Hanover Counties.
- Radiation Protection Section will establish an independent dose assessment and projection team at the State EOC. This team will communicate with the Utility EOF, State Mobile Lab and deployed field survey teams to obtain data for developing dose projections.
- Federal resources available to assist the state in tracking the radioactive plume will be identified.

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

EXTENT OF PLAY:

- **Participants:** NC SERT, Brunswick and New Hanover Counties.
- Radiation Protection Section will analyze technical data and make recommendations to the SERT Leader who in turn will make recommendations to the Brunswick & New Hanover EM Coordinators.
- Weather data will be pre-determined.
- Brunswick and New Hanover Counties will participate in the decision making process for PARS.
- Demonstration of KI distribution for the General Public will be accomplished on-scenario by local Public Health officials through discussion with and presentation of distribution documentation to the Federal Evaluator.

2.c – Protective Action Decisions for Protection of Special Populations:

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

EXTENT OF PLAY:

- **Participants:** Brunswick and New Hanover Counties.
- Counties will demonstrate their procedures through discussion with the Federal Evaluator, by using a special populations list.
- Distribution of KI to institutionalized individuals, who cannot be evacuated, will be discussed with the Federal Evaluator.

3. PROTECTIVE ACTION IMPLEMENTATION

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.)

EXTENT OF PLAY:

- **Participants:** NC SERT, Brunswick and New Hanover Counties.

- Radiation Protection Section will provide technical advice and assistance to NC SERT, Brunswick and New Hanover Counties.

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 the general Public) is maintained. (NUREG-0654, E.7., J.10. e, f.)

EXTENT OF PLAY:
Participants: State of NC, Brunswick and New Hanover Counties.

- Demonstration of KI will be by "Discussion Only" at State and County EOCs.

- Decision to take KI is made by the State Health Director in consultation with the State Pharmacist, Radiation Protection Section and County Health Directors.

3.c – Implementation of Protective Actions for Special Populations.

Criterion 3.c.1:
Protective action decisions are implemented for special population groups within areas subject to protective actions. (NUREG-0654, E.7.,J.9.,10.c.d.e.g.)

EXTENT OF PLAY:

- **Participants:** Brunswick and New Hanover County

- In accordance with current HIPAA laws, a current list of Special Needs Populations will be available for review by the Federal Evaluator.

- Evacuation/relocation requirements will be demonstrated through discussions at the EOC, based on the scenario and county implementation procedures.

- Contact via telephone with special population groups for PADs and transportation resources will be simulated. Special Needs transportation is in accordance with local procedures maintained by the counties. However, one actual phone call can be made to a special population facility at the request of the evaluator for demonstration purposes.

Criterion 3.c.2:

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

EXTENT OF PLAY:

- **Participants:** Brunswick County

- School evacuation procedures and interviews will be demonstrated via discussion with key school staff members at each school location being evaluated.

- Law enforcement agencies will discuss school bus escort procedures during their traffic and access control interviews as described in 3.d.

Brunswick County schools for evaluation:

School(s):	Southport Elementary Southport Christian School
Date and Time:	**Tuesday, May 11, 2010 at 10:00 a.m.**
Location:	Brunswick County EOC 3325 Old Ocean Highway, Building C Bolivia, North Carolina 28422

New Hanover County Schools for evaluation: New Hanover County has only one school in the EPZ and successfully demonstrated during the 2008 exercise, therefore, this criterion will not be demonstrated during this exercise.

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.)

EXTENT OF PLAY:

Traffic control points:

- **Participants:** NC State Highway Patrol, New Hanover County Sheriff's Department, Brunswick County law enforcement agency TBD

- Traffic control points will be discussed with the Federal Evaluator. State law enforcement personnel will discuss proper procedures, equipment and turn back values.

  Representatives from the NC State Highway Patrol, New Hanover County Sheriff's Office and Brunswick County officials TBD, are available for interview

  Date and Time: Wednesday, May 12, 2010 at 10:00 a.m.

  Location: Brunswick County EOC
  Brunswick County EOC
  3325 Old Ocean Highway, Building C
  Bolivia, North Carolina 28422

Waterway Warning:

- **Participants:** NC SERT (Wildlife Commission, Marine Fisheries) US Coast Guard

- Waterway Warning will be discussed with the federal evaluator during the actual demonstration of the boats on the waterway. State personnel will discuss proper procedures, equipment, and turn back values. Coast Guard will discuss procedures for requesting and transmitting an "Urgent Notice to Mariners".

  Representatives available for interview include:

  USCG
  NC Wildlife Commission
  NC Marine Patrol

  Date and Time: Wednesday, May 12:00 at 1:00 p.m.

Location: Brunswick County EOC (C&C Team)
3325 Old Ocean Highway, Building C
Bolivia, North Carolina 28422

Individual Marine Warning Zones (as identified in Annex G, Appendix 1)

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

EXTENT OF PLAY:
- **Participants:** NC SERT, Brunswick and New Hanover Counties.

- During the interview process, as scheduled in 3.d.1 above, officers will identify impediments to evacuation based on a simulated set of circumstances and questions posed by the federal evaluator.

4. FIELD MEASUREMENT AND ANALYSIS

4.a – Plume Phase Field Measurement & Analysis

Criterion 4.a.1:
The field teams are equipped to perform field measurements of direct radiation exposure (cloud and ground shine) and to sample airborne radioiodine and particulates. (NUREG-0654, H.10, I.8., 9.,11.)

EXTENT OF PLAY:
- **Participants:** Radiation Protection Section.

- Radiation Protection Section will demonstrate this criterion using two field survey teams.

- Radiation Protection Section's mobile laboratory and other field activities will be conducted from the Army National Guard facility at the Wilmington International Airport

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

EXTENT OF PLAY:
- **Participants:** Radiation Protection Section

- Radiation Protection Section will demonstrate this criterion using two field teams.

- Radiation Protection Section's mobile laboratory and other field activities will be conducted from the Army National Guard facility at the Wilmington International Airport

Criterion 4.a.3:
Ambient radiation measurements are made and recorded at appropriate locations, and radioiodine and particulate samples are collected. Teams must 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.8., 9., 11.)

EXTENT OF PLAY:
- **Participants:** Radiation Protection Section.

- Radiation Protection Section's mobile laboratory and other field activities will be conducted from the Army National Guard facility at the Wilmington International Airport

4.c - Laboratory Operations

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

EXTENT OF PLAY:
- **Participants:** Radiation Protection Section.

- Radiation Protection Section's mobile laboratory and other field activities will be conducted from the Army National Guard facility at the Wilmington International Airport.
- FOR TRAINING ONLY

5. EMERGENCY NOTIFICATION AND PUBLIC INFORMATION

5.a – Activation of the Prompt Alert and Notification System:

Criterion 5.a.1:
Activities associated with primary alerting and notification of the public are completed in a timely manner following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. The initial instructional message to the public must include: (1) identification of the State or local government organization and the official with the authority for providing the alert signal and instructional message; (2) identification of the commercial nuclear power plant and a statement that an emergency situation exists at the plant; (3) reference to REP-specific emergency information (e.g., brochures and information in telephone books) for use by the general public during an emergency; and (4) a closing statement asking the affected and potentially affected population to stay tuned for additional information. (NUREG 10 CFR Part 50, Appendix E & NUREG-0654, E.1.,4.,5.,6.,7)

EXTENT OF PLAY:

- **Participants:** NC SERT, Brunswick and New Hanover Counties, NWS-Wilmington.

- At Site Area Emergency North Carolina's counties will be in Direction and Control. Brunswick County will be the "Lead County", and coordinate and conduct the countdown for siren activation.

- Following the simulated sounding of sirens and the first PAD recommendations to the public, Brunswick County will request the State to take direction and control.

- PAD messages and news releases will be coordinated by the states and counties.

- EAS messages will be in accordance with Part 11 of FCC Rules & Regulations, previously approved for North Carolina by DHS/FEMA.

- *NWS-Wilmington will **NOT ACTIVATE** EAS or NOAA weather radio systems.*

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

EXTENT OF PLAY:

- **Participants**: U.S. Coast Guard, NC SERT, Brunswick and New Hanover Counties

- The exercise control staff will provide an exercise inject to indicate a siren failure to prompt discussion of appropriate activity.

- **If a siren has failed, back-up alerting will be discussed with the Federal Evaluator for a pre-determined zone (siren failure simulated).**

Brunswick County:

Agency:	***TBD*** Simulated siren failure will determine who will complete the demonstration
Date and Time:	**On-scenario, June 22, 2010**

New Hanover County:

Agency:	New Hanover County Fire Services Station #91, Federal Point VFD
Date and Time:	**Wednesday, May 12, 2010 at 6:30 p.m.**
Location:	Trask Coliseum Wilmington, North Carolina

- Waterway Warning will be discussed with the federal evaluator during the actual demonstration of the boats on the waterway. State personnel will discuss proper procedures, equipment, and turn back values. Coast Guard will discuss procedures for requesting and transmitting an "Urgent Notice to Mariners".

Date and Time: **Wednesday May 12, 2010 at 1:00 p.m.**

Location: Brunswick County EOC (C&C Team)
3325 Old Ocean Highway, Building C
Bolivia, North Carolina 28422

Individual Marine Warning Zones (as identified in Annex G, Appendix 1)

5.b – Emergency Information and Instructions for the Public and the Media

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

EXTENT OF PLAY:

- **Participants**: NC SERT, Brunswick and New Hanover Counties

- Local JIC personnel will respond from their daily operation office. State JIC personnel pre-stage at the JIC – **but** State personnel must not start activity at the JIC until local PIOs have accomplished one press release each.

- PIOs will receive rumor control calls at the JIC once it is activated. ***Approximately six calls per hour will be made to each state and county PIO represented at the JIC.***

- Counties will receive three or four calls per hour prior to JIC activation and will prepare "one" news release. News releases shall be coordinated between counties prior to JIC activation.

- Once JIC is operational two rumors will be identified as well as any trends and appropriate actions taken to address them.

6. SUPPORT OPERATION/FACILITIES

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 adequate space, resources and trained personnel to provide monitoring, decontamination and registration of emergency workers and evacuees. (NUREG-0654, J.10.h; K.5.b.)

EXTENT OF PLAY:

- **Participants: Brunswick County, New Hanover County**
- Six individuals per monitoring station will be demonstrated. Setup IAW plans, process 6 individuals, 2 contaminated (1male & 1 Female).
- Two emergency workers will be monitored.
- One emergency worker will be decontaminated using water.
- General population decontamination procedures will be simulated and conducted by interview.

Brunswick County: Leland Fire Department
Brunswick County EMS

Location: North Brunswick High School
114 Scorpion Drive
Leland, NC 28451

Date & Time: Tuesday, May 11, 2010 at 6:30 p.m.

New Hanover County: UNC Wilmington

Location: Trask Coliseum
601 S. College Road
Wilmington, North Carolina 28403

Date & Time: **Wednesday, May 12, 2010 at 6:30 p.m.**

6.b – Monitoring and Decontamination of Emergency Worker Equipment:

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

EXTENT OF PLAY:

- **Participants:** Brunswick County

- Two vehicles will be monitored and decontaminated using water at the following times and locations:

Brunswick County:

Location: North Brunswick High School
114 Scorpion Drive
Leland, North Carolina 28451

Date & Time: Tuesday, May 11, 2010 at 6:30 p.m.

New Hanover County: Myrtle Grove Fire Department, Station #31

Location: 5636 Carolina Beach Road
Wilmington, North Carolina 28412

Date & Time: **On-scenario, Tuesday, June 22, 2010 at approximately 2:00 p.m.**

6.c – Temporary Care of Evacuees:

Criterion 6.c.1:
Managers of congregate care facilities demonstrate that the centers have resources to provide services and accommodations consistent with American Red Cross planning guidelines. 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.)

EXTENT OF PLAY:

- **Participants:** Brunswick County, New Hanover County

Brunswick County:

Location: North Brunswick High School
114 Scorpion Drive
Leland, North Carolina 28451

Date & Time: Tuesday, May 11, 2010 at 6:30 p.m.

New Hanover County: UNC Wilmington

Location: Trask Coliseum
601 S. College Road
Wilmington, North Carolina 28403

Date & Time: **Tuesday, May 12, 2010 at 6:30 p.m.**

Brunswick and New Hanover Counties:

Date and Time: **On-scenario, Tuesday, June 22, 2010**

Representatives from Brunswick and New Hanover DSS agencies will complete the interview process

6.d – Transportation and Treatment of Contaminated Injured Individuals:

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

EXTENT OF PLAY:

- **Participants**: Dosher Hospital, Brunswick County EMS

  Date & Time: September 14, 2010

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