McGuire Nuclear Station Exercise – August 18, 2009

Final Report - Radiological Emergency Preparedness Program

October 30, 2009

FEMA

Final Exercise Report

McGuire Nuclear Station

Licensee:	**Duke Energy**
Exercise Date:	**August 18, 2009**
Report Date:	**October 30, 2009**

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

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TABLE OF CONTENTS

Page

List of Appendices

List of Tables

I. EXECUTIVE SUMMARY

On August 18, 2009, the Department of Homeland Security, Federal Emergency Management Agency (FEMA), Region IV, Radiological Emergency Preparedness (REP) Program staff evaluated a plume exposure pathway exercise in the emergency planning zone (EPZ) around the McGuire Nuclear Station. The evaluation of out of sequence activities during the week of August 3-7, 2009 is included in this report. The activities included: traffic control points; protective actions for schools; reception and congregate care centers; emergency worker and vehicle monitoring and decontamination; and waterway warning. A Medical Services (MS-1) Drill was conducted on August 7, 2009.

The purpose of the exercise was to assess the level of State and local preparedness in responding to a radiological emergency. This exercise was held in accordance with FEMA's policies and guidance concerning the exercise of State and local radiological emergency response plans and procedures. The previous Federally evaluated exercise was conducted on October 16, 2007. The qualifying emergency preparedness exercise was conducted in December 1980.

Officials and representatives from the State of North Carolina; the risk counties of Catawba, Gaston, Iredell, Lincoln, and Charlotte-Mecklenburg Counties; the host county of Cabarrus County; the Nuclear Regulatory Commission (NRC), Region II; and Duke Energy as well as numerous volunteers participated in this exercise. FEMA Region IV also played in the exercise by providing response liaison personnel to the State of North Carolina, which contributed to the exercise realism. 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.

State and local organizations demonstrated knowledge of their emergency response plans and procedures and successfully implemented them. FEMA did not identify any Deficiencies or Areas Requiring Corrective Action (ARCA) during this exercise. The strength of the working relationships between the various State and local first responder agencies in their mission planning and execution abilities throughout all phases of the exercise was obvious, and confirmed the success of the McGuire Task Force organizational structure. The McGuire Task Force, co-chaired by representatives from both North Carolina Emergency Management and Duke Energy, has proven to be an excellent example of public and private agency cooperation.

II. INTRODUCTION

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

Title 44 CFR 350 establishes the policies and procedures for the REP Program's initial and continued approval of State and local governments' radiological emergency planning and preparedness for commercial nuclear power plants. This approval is contingent, in part, on State and local government participation in joint exercises with licensees.

FEMA's responsibilities in radiological emergency planning for fixed nuclear facilities (FNF) include the following:

- Taking the lead in offsite emergency planning and in the review and evaluation of radiological emergency response plans (RERP) and procedures developed by State and local governments;

- Determining whether such plans and procedures can be implemented on the basis of observation and evaluation of exercises of the plans and procedures conducted by State and local governments;

- Responding to requests from the Nuclear Regulatory Commission (NRC) to the REP Program pursuant to the Memorandum of Understanding between the NRC and FEMA (Federal Register, Vol. 58, No. 176, September 14, 1993).

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

    - Department of Agriculture
    - Department of Commerce
    - Department of Energy
    - Department of Health and Human Services
    - Department of Homeland Security
    - Department of the Interior
    - Department of Transportation
    - Environmental Protection Agency
    - Food and Drug Administration and
    - Nuclear Regulatory Commission.

Field representatives of these agencies serve on the Radiological Assistance Committee (RAC), which is chaired by FEMA.

Formal submission of the RERPs for the McGuire Nuclear Station to FEMA by the State of North Carolina and involved local jurisdictions occurred on March 18, 1981. Formal approval of the RERP was granted by FEMA on June 4, 1981, under 44 CFR 350.

A REP exercise was evaluated on August 18, 2009, and included evaluations of the following out-of-sequence activities held from August 3 through August 7, 2009 to include a Medical Services-1 (MS-1) Drill on August 7, 2009:

- State of North Carolina, North Carolina Emergency Management (NCEM), North Carolina Wildlife Commission, Division of Enforcement; Charlotte-Mecklenburg Police Department (lead agency for Incident Command); Catawba County Sheriff's Office; Lincoln County Sheriff's Office; and Iredell County Sheriff's Office: waterway warning and clearance of Lake Norman on August 5, 2009.

- State of North Carolina, NCEM Western Branch Office and North Carolina State Highway Patrol: Traffic control points at McGuire Nuclear Station McGuire Office Complex (MOC) on August 5, 2009.

- Charlotte-Mecklenburg County: Traffic control points at McGuire Nuclear Station MOC on August 5, 2009; protective actions for schools at Charlotte-Mecklenburg Emergency Management Office and the Davidson Elementary, Cornelius Elementary, Huntersville Elementary, and Barnette Elementary Schools on August 4, 2009; emergency worker and equipment monitoring and decontamination at Charlotte Fire Department Station #27 on August 6, 2009; and a MS-1 Drill at Charlotte-Mecklenburg County Emergency Medical Services (EMS) MEDIC parking lot (accident site) and Carolinas Medical Center-University (emergency room) on August 7, 2009.

- Catawba County: Traffic control points at McGuire Nuclear Station MOC on August 5, 2009; and reception and congregate care at Maiden Middle School (old Maiden High School) on August 6, 2009.

- Gaston County: Traffic control points at McGuire Nuclear Station MOC on August 5, 2009; and emergency worker and equipment monitoring and decontamination at Lowell Fire Department on August 4, 2009.

- Iredell County: Traffic control points at McGuire Nuclear Station MOC on August 5, 2009; protective actions for schools at Iredell County emergency operations center (EOC) on August 4, 2009; emergency worker and equipment monitoring and decontamination at I-77 Rest Area (Mile Marker 39) on August 6, 2009; and reception and congregate care at South Iredell High School on August 6, 2009.

- Lincoln County: Traffic control points at McGuire Nuclear Station MOC on August 5, 2009; protective actions for schools at Lincoln County EOC on August

3, 2009; and reception and congregate care at West Lincoln High School on August 6, 2009.

- Cabarrus County: Traffic control points at McGuire Nuclear Station MOC on August 5, 2009; and reception and congregate care at Northwest Cabarrus Middle School on August 4, 2009.

FEMA assessed the capabilities of State and local emergency preparedness organizations to implement their RERPs and procedures to protect the public health and safety during a radiological emergency involving the McGuire Nuclear Station. This report presents the results of the exercise and findings on the performance by offsite response organizations (ORO) during a simulated radiological emergency.

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

The criteria utilized in the evaluation process are contained in:

- NUREG-0654/FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980;

- FEMA "Interim Radiological Emergency Preparedness Manual," dated August 2002.

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

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

III. EXERCISE OVERVIEW

This section contains data and basic information relevant to the August 18, 2009 exercise and out-of-sequence activities that occurred during the exercise week. The purpose of the exercise was to test Federal, State and local response capabilities in the area surrounding the McGuire Nuclear Station.

A. Plume Emergency Planning Zone Description

The McGuire Nuclear Station is located in northwest Charlotte-Mecklenburg County, approximately 17 miles northwest of Charlotte, North Carolina. The topography of the 10-mile EPZ varies from the shoreline of Lake Norman and the Catawba River to the west, to hills from the north, east, south and west.

The 10-mile EPZ contains a resident population of approximately 138,575. Parts of Charlotte-Mecklenburg, Lincoln, Gaston, Iredell and Catawba Counties lie within the plume EPZ. Cabarrus County is a host county for residents evacuating primarily from the EPZ portion of Charlotte-Mecklenburg County. The land use within the EPZ is predominately suburban, non-farm residential and recreational with a small amount being used to support dairy and beef cattle, and fruit and vegetable farming. There are five parks in the EPZ.

The major transportation routes include: Interstate 77, US Highway 21, and North Carolina 115 to the east; North Carolina Highway 16 to the west and North Carolina Highway 73 to the south of the site. The CSX Railroad passes within four miles to the west, with a spur that travels to the McGuire Nuclear Station site. There is seasonal boat traffic on the Catawba River and Lake Norman. The EPZ is divided into 19 sub-zones designated A through S.

B. Exercise Participants

The following agencies, organizations, and units of government participated in the McGuire Nuclear Station exercise on August 18, 2009.

STATE OF NORTH CAROLINA

Governor's Office
- Public Information
- Office of Citizen's Affairs

Department of Crime Control and Public Safety
- Division of Emergency Management
- North Carolina State Highway Patrol
- National Guard
- Public Affairs Office

Department of Environment and Natural Resources
- Division of Environmental Health, Radiation Protection Section

Wildlife Resources Commission, Division of Enforcement
Department of Health and Human Services
Division of Public Health
Office of Public Health and Response
Division of Facility Services

FEDERAL AGENCIES

Environmental protection Agency, Region IV
Federal Emergency Management Agency, Region IV
Nuclear Regulatory Commission, Region II

RISK JURISDICTIONS

Charlotte-Mecklenburg County
- Carolinas Medical Center- University (CMC-U) Hospital
- Charlotte Fire Department
- Charlotte-Mecklenburg Police Department
- Charlotte-Mecklenburg County Schools
- Department of Social Services
- Emergency Management
- Emergency Medical Service/MEDIC
- Fire Marshal
- Health Department
- Huntersville Police Department
- Sheriff's Office

Catawba County
- Catawba County Schools
  - Emergency Management
- Emergency Medical Service
- Sheriff's Office
- Department of Social Services
- Health Department
- Maiden Fire Department
- Maiden Police Department

Gaston County
- Alexis Volunteer Fire Department
- Department of Social Services
- East Gaston Volunteer Fire Department
- Emergency Management
- Emergency Medical Service
- Fire Marshal
- Gaston County Schools
- Gaston County Police Department

Health Department
Lowell Fire Department
Mount Holley Police Department
Sheriff's Office
Stanley Police Department
Stanley Volunteer Fire Department

Iredell County
Department of Social Services
Emergency Management
Emergency Medical Service
Fire Marshal
Health Department
Iredell County Schools
Iredell County Radiological Monitoring and Decontamination Team
Mooresville Fire Department
Shepherd Volunteer Fire Department
Sheriff's Office
Troutman Fire and Rescue Department

Lincoln County
Department of Social Services
Emergency Management
Emergency Medical Service
Fire Marshal
Health Department
Howard's Creek Volunteer Fire Department
Lincoln County Schools
Sheriff's Office

HOST JURISDICTION

Cabarrus County
Cabarrus Health Alliance/Health Department
Cabarrus County Schools
Cabarrus County Sheriff's Office
Department of Social Services
Emergency Management
Emergency Medical Service
Kannapolis Fire Department
Kannapolis Police Department

PRIVATE/OTHER VOLUNTEER ORGANIZATIONS

American Red Cross (all chapters)
Amateur Radio Emergency Services/Radio Amateur Civil Emergency Service (All County Chapters)
Duke Energy

C. Exercise Timeline

Table 1 on the following page presents the times at which key events and activities occurred during the plume phase of the McGuire Nuclear Station exercise on August 18, 2009. Included are times that notifications were made to the participating jurisdictions/functional entities.

Table 1. Exercise Timeline

Date and Site: August 18, 2009 - McGuire Nuclear Station

Emergency Classification Level or Event	Time Utility Declared	Time That Notification Was Received or Action Was Taken								
		SERT/ SEOC	Western Branch	JIC	Charlotte-Mecklenburg County	Catawba County	Gaston County	Iredell County	Lincoln County	Cabarrus County
Unusual Event	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alert	0824	0838	0852	0834	0837	0848	0859	0836	0850	0839
Site Area Emergency	1004	1014	1018	1018	1014	1018	1016	1015	1010	1017
General Emergency	1208	1215	1222	1233	1217	1228	1216	1221	1221	1220
Simulated Rad. Release Started	1202	1215		1300	1217	1216	1202	1221	1221	1220
Simulated Rad. Release Ended	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing
Facility Declared Operational	0908	1012	0852	0859/1015	0955	0900	0944	0845	0924	0936
Exercise Terminated	1418	1423	1418	1428	1426	1418	1425	1425	1418	1423
Declaration of State of Emergency Local					1105	1117	1030	1030	0955	1240
State		1132		1132		1149	1146			1138
Early Precautionary Actions: Schools: Early dismissal of Host County Schools					0958			0925		
Special Populations						1135		1050		
Clear Lake Norman; Relocated Marine 1; Established traffic control points; and Stopped Construction on Highway 73										
1st Protective Action Decision: Public Warning		1036	1036		1036	1036	1036	1036	1036	1036
1st Siren Activation		1040	1040		1040	1040	1040	1040	1040	1040
1st EAS Message (Stay Tuned)		1045	1045		1045	1045	1045	1045	1045	1045
1st NWS Message (Stay Tuned)		1053	1053		1053	1053	1053	1053	1053	1053
2nd Protective Action Decision: Evacuate Zones: A, B, C, D, I, J, L, M, N Shelter in Place Zones: All other Zones		1245	1245		1245	1245	1245	1245	1245	1245
2nd Siren Activation		1300	1300		1300	1300	1300	1300	1300	1300
2nd EAS Message		1305	1305		1305	1305	1305	1305	1305	1305
2nd NWS Message		1310	1310		1310	1310	1310	1310	1310	1310
3rd Protective Action Decision: Ingestion of KI in all Zones for the General Public		1315	1315		1315	1315	1315	1315	1315	1315
3rd Siren Activation		1320	1320		1320	1320	1320	1320	1320	1320
3rd EAS Message		1325	1325		1325	1325	1325	1325	1325	1325
3rd NWS Message		1325	1325		1325	1325	1325	1325	1325	1325
KI Ingestion Decision: Emergency Workers		1235	1235		1235	1235	1235	1235	1235	1235

IV. EXERCISE EVALUATION AND RESULTS

This section contains the results and preliminary findings of the evaluation for all jurisdictions and functional entities that participated in the exercise on August 18, 2009 and out of sequence activities demonstrated during the week of August 3-7, 2009 and MS-1 Drill on August 7, 2009. The exercise tested the offsite emergency response capabilities of State and local governments within the 10-mile EPZ around the McGuire Nuclear Station.

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

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

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

M - Met (No Deficiency or ARCAs assessed and no unresolved ARCAs from prior exercises)

D - Deficiency assessed

A - ARCA(s) assessed or unresolved ARCA(s) from prior exercise(s)

N - Not Demonstrated (Reason explained in Subsection B)

Table 2. Summary of Exercise Evaluation

Date and Site: August 18, 2009 - McGuire Nuclear Station

ELEMENT/Sub-Element	SERT/ SEOC	Dose Assess	WBO	EOF	JIC	Charlotte-Mecklenburg County	Catawba County	Gaston County	Iredell County	Lincoln County	Cabarrus County
1. EMERGENCY OPERATIONS MANAGEMENT											
1.a.1 Mobilization	M	M	M	M	M	M	M	M	M	M	M
1.b.1 Facilities											M
1.c.1 Direction and Control	M	M	M	M		M	M	M	M	M	M
1.d.1 Communications Equipment	M	M	M	M		M	M	M	M	M	M
1.e.1 Equipment & Supplies to Support Operations	M	M	M	M	M	M	M	M	M	M	M
2. PROTECTIVE ACTION DECISION MAKING											
2.a.1 Emergency Worker Exposure Control	M	M				M	M	M	M	M	M
2.b.1 Rad Assessment & PARs Based on Available Information		M		M							
2.b.2 Rad Assessment and PADs for the General Public	M	M				M	M	M	M	M	M
2.c.1 Protective Action Decisions for Special Populations						M	M	M	M	M	M
2.d.1 Rad Assessment & Decision Making for Ingestion Exposure											
2. e.1 Rad Assmt Decision Making for Relocation, Re-entry & Return											
3. PROTECTIVE ACTION IMPLEMENTATION											
3.a.1 Implementation of Emergency Worker Control		M				M	M	M	M	M	M
3.b.1 Implementation of KI Decisions						M	M	M	M	M	M
3.c.1 Implementation of PADs for Special Populations						M	M	M	M	M	M
3.c.2 Implementation of PADs for Schools						M	M	M	M	M	M
3.d.1 Implementation of Traffic and Access Control						M	M	M	M	M	M
3.d.2 Impediments to Evacuation and Traffic and Access Control						M	M	M	M	M	M
3.e.1 Implementation of Ingestion Decisions Using Adequate Info											
3.e.2 Implement at of IP Decisions Showing Strategies/Instruction.											
3.f.1 Implementation of Relocation, Re-entry and Return Decisions											
4. FIELD MEASUREMENT and ANALYSIS											
4.a.1 Plume Phase Field Measurement & Analysis Equipment											
4.a.2 Plume Phase Field Measurement & Analysis Management		M									
4.a.3 Plume Phase Field Measurements & Analysis Procedures											
4.b.1 Post Plume Field Measurement & Analysis											
4.c.1 Laboratory Operations											
5. EMERGENCY NOTIFICATION & PUBLIC INFORMATION											
5.a.1 Activation of Prompt Alert and Notification	M					M	M	M	M	M	M
5.a.2 Activation of Prompt Alert /Notification 15-Min(Fast Breaker)											
5.a.3 Activation of Prompt Alert/Notification Backup Alert /Notification						M	M	M	M	M	M
5.b.1 Emergency Info and Instructions for the Public and the Media	M				M	M	M	M	M	M	M
6. SUPPORT OPERATIONS/FACILITIES											
6.a.1 Monitor. Decon of Evacuees/Emerg. Workers/Registrat. of Evac.						M	M	M	M	M	M
6.b.1 Monitoring and Decon of Emergency Worker Equipment						M		M	M		
6.c.1 Temporary Care of Evacuees							M		M	M	M
6.d.1 Transport and Treatment of Contaminated Injured Individuals						M					

LEGEND: M = Met A = ARCA D = Deficiency

B. Status of Jurisdictions Evaluated

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

- **Met** - Listing of the demonstrated exercise criteria under which no Deficiencies or ARCAs were assessed during this exercise and under which no ARCAs assessed during prior exercises remain unresolved.

- **Deficiency** - Listing of the demonstrated exercise criterion under which one or more Deficiencies was assessed during this exercise. Included is a description of each Deficiency and recommended corrective actions.

- **Area Requiring Corrective Actions** - Listing of the demonstrated exercise criterion under which one or more ARCAs were assessed during the current exercise or ARCAs assessed during prior exercises that remain unresolved. Included is a description of the ARCA assessed during this exercise and the recommended corrective action to be demonstrated before or during the next biennial exercise.

- **Not Demonstrated** - Listing of the exercise criteria, which were not demonstrated as scheduled during this exercise and the reason, they were not demonstrated.

- **Prior ARCAs - Resolved** – Description(s) of ARCA(s) assessed during previous exercises, which were resolved in this exercise and the corrective actions demonstrated.

- **Prior ARCAs - Unresolved** – Description(s) of ARCA(s) assessed during prior exercises, which were not resolved in this exercise. Included is the reason the ARCA remains unresolved and recommended corrective actions to be demonstrated before or during the next biennial exercise.

The following are definitions of the two types of exercise issues, which may be discussed in this report.

- A **Deficiency** is defined in the FEMA Interim REP Manual as "...an observed or identified inadequacy of organizational performance in an exercise that could cause a finding that offsite emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken in the event of a radiological emergency to protect the health and safety of the public living in the vicinity of a nuclear power plant."

- An **ARCA** is defined in the Interim REP Manual as "...an observed or identified inadequacy of organizational performance in an exercise that is not considered, by itself, to adversely impact public health and safety."

1. STATE OF NORTH CAROLINA

1.1 State Emergency Operations Center

The State Emergency Response Team (SERT) Leader and the assembled staff of the State Emergency Operations Center (SEOC) successfully demonstrated commendable proficiency in the performance of their duties in the event of a radiological emergency. The SERT Leader, Operations Chief, Radiological Technical Advisor, Information and Planning Chief, Radiation Protection Section (RPS) Chief, and other key team members, as well as the entire staff, clearly understood their responsibilities, followed their plans and procedures, and performed their assigned functions with a high level of proficiency. All participants were knowledgeable and trained in their duties. The periodic briefings conducted on a recurring basis fully involved the various agency representatives in the coordination process and made the best use of their knowledge and expertise. The obvious dedication of the SERT Leader in addressing the concerns and recommendations of the county emergency management directors while achieving concurrence on key decisions was commendable.

a. **MET:** Criteria 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2, 5.a.1 and 5.b.1

b. **DEFICIENCY:** NONE

c. **ARCA:** NONE

d. **NOT DEMONSTRATED:** NONE

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

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

1.2 Dose Assessment

The North Carolina RPS dose assessment staff successfully monitored and evaluated plant, radiological, and meteorological data and managed the field monitoring teams (FMTs) to locate, track, and quantify the simulated radiological plume. The RPS staff accurately performed dose projections based on plant conditions and licensee radiological data, and compared FMT data with projected doses to insure reasonable agreement. The RPS Chief provided excellent direction and control of the dose assessment staff, and worked effectively with Public Health officials and the licensee's Technical Advisor to make appropriate recommendations, including those related to the authorization of potassium iodide (KI). The dose assessment staff provided accurate input for protective action decisions (PADs) by the SERT Team Leader. Dose assessment and FMT personnel demonstrated competence and dedication in the execution of their responsibilities.

a. **MET:** Criteria 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.1, 2.b.2, 3.a.1 and 4.a.2

b. DEFICIENCY: NONE

c. AREAS REQUIRING CORRECTIVE ACTION: NONE

d. NOT DEMONSTRATED: NONE

e. PRIOR ARCAs - RESOLVED: NONE

f. PRIOR ARCAs - UNRESOLVED: NONE

1.3 Western Branch Office

The Western Branch Office Regional Coordination Center (WBO-RCC) effectively monitored the events and coordinated support as required. The WBO staff proactively provided assistance, anticipated information requirements, and effectively identified communication problems. For example, when the Alert Emergency Classification Level (ECL) was declared by the utility, the WBO Manager identified that Charlotte-Mecklenburg County had not received the Alert notification via the Selective Signaling System (SSS), and WBO personnel also first determined there were technical problems with the Decision Line telephone line, which required using a commercial telephone conference call system instead. This was later replaced with the 800 MHz Voice Interoperability Plan for Emergency Responders (VIPER) radio system, which gave better results. This quick detection of communication problems enabled all the major agencies and jurisdictions to maintain good communications at all times. All personnel in the WBO personnel worked extremely well together to effectively accomplish their assigned tasks. In addition, the presence of a Duke Energy Liaison Officer in the WBO greatly assisted with communication and coordination actions throughout the exercise.

a. MET: Criteria 1.a.1, 1.c.1, 1.d.1 and 1.e.1

b. DEFICIENCY: NONE

c. AREAS REQUIRING CORRECTIVE ACTION: NONE

d. NOT DEMONSTRATED: NONE

e. PRIOR ARCAs - RESOLVED: NONE

f. PRIOR ARCAs - UNRESOLVED: NONE

1.4 Emergency Operations Facility

The Emergency Operations Facility (EOF) is located in Duke Energy's corporate office in Charlotte, North Carolina. The EOF provides sufficient space and amenities to support emergency response operations and the State Liaisons that deploy to the EOF. The NCEM Liaison Officer and RPS Liaison Officer effectively performed their duties. The EOF

experienced problems with communications and computer equipment. In both instances the EOF staff developed suitable alternative means to ensure that appropriate information was provided to the State and local governments without undue delay. Computer problems affected the display of information in the EOF, but did not negatively impact the liaison officers from carrying out their duties.

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

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

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

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

1.5 Joint Information Center

The Public Information Officer (PIO) staff at the Joint Information Center (JIC) successfully demonstrated their ability to develop and distribute complete and accurate emergency information and instructions to the public in a timely manner. The JIC was staffed and managed by an effective public information staff. News releases were developed and distributed to the media promptly when new information became available. Media briefings were conducted in an efficient and professional manner. Media monitoring was conducted via television, radio, and the Internet. The public inquiry activity was conducted effectively. The JIC function was activated, organized, managed, and accomplished by a professional, dedicated staff.

a. **MET:** Criteria 1.a.1, 1.e.1 and 5.b.1

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

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

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

1.6 Waterway Warning

Representatives of the North Carolina Wildlife Resources Commission (NCWRC), Division of Enforcement; Charlotte-Mecklenburg Police Department (CMPD), Lakes

Enforcement Section; Catawba County Sheriff's Office; Iredell County Sheriff's Office; and the Lincoln County Sheriff's Office conducted waterway warning on Lake Norman, part of which is in the emergency planning zone (EPZ). In addition, the North Carolina State Highway Patrol provided a Master Trooper, who served as a Liaison Officer on one of the NCWRC boats. The CMPD provided the Incident Commander (IC), control craft and patrol boats, and successfully oversaw clearance operations. The NCRWC officers provided operations section support at the Incident Command Post (ICP) as well as patrol boats. Sheriff's Deputies from the three supporting counties provided patrol boats. All the law enforcement officers involved were rapidly briefed on their mission, issued appropriate dosimetry and KI, launched their boats, and successfully cleared Lake Norman. The level of professionalism and mutual support displayed by the officers involved was commendable.

a. **MET:** Criteria 1.d.1, 1.e.1, 3.a.1, 3.b.1 and 5.a.3

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

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

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

2. RISK JURISDICTIONS

2.1 CHARLOTTE-MECKLENBURG COUNTY

2.1.1 Emergency Operations Center

The Charlotte-Mecklenburg County Emergency Operations Center (EOC) staff was well trained and familiar with their plans and procedures. The various agency staff members promptly reported to the EOC and were quickly prepared to respond despite no pre-positioning of exercise participants. They were kept informed of situational awareness at all times through staff briefings and computer displays. Appropriate protective actions were implemented to maximize health and safety for the county citizens. The public was kept well informed of plant conditions, emergency instructions, and resources for additional information. The dedication of all EOC staff members was evident throughout this exercise.

a. **MET:** Criteria 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2, 2.c.1, 3.b.1, 3.c.1, 3.c.2, 3.d.1, 3.d.2, 5.a.1, 5.a.3 and 5.b.1

b. **DEFICIENCY:** NONE

c. AREAS REQUIRING CORRECTIVE ACTION: NONE

d. NOT DEMONSTRATED: NONE

e. PRIOR ARCAs - RESOLVED: NONE

f. PRIOR ARCAs - UNRESOLVED: NONE

2.1.2 Traffic Control Points

Procedures to establish and maintain traffic control points (TCPs) were successfully demonstrated. Law enforcement personnel representing the Charlotte-Mecklenburg, Davidson, and Huntersville Police Departments, and the North Carolina State Highway Patrol participated in interviews. The personnel were well versed in personal radiological safety procedures and knowledgeable of their role in implementing TCPs.

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

b. DEFICIENCY: NONE

c. AREAS REQUIRING CORRECTIVE ACTION: NONE

d. NOT DEMONSTRATED: NONE

e. PRIOR ARCAs - RESOLVED: NONE

f. PRIOR ARCAs - UNRESOLVED: NONE

2.1.3 Backup Route Alerting

Charlotte-Mecklenburg County backup route alerting was successfully demonstrated at the EOC. The fire officials responsible for performing the mission had good knowledge of the plans, procedures, and the equipment available for performing the backup route alerting. They provided an accurate description of proper dose control measures and were familiar with radiation control measures.

a. MET: Criteria 3.a.1 and 5.a.3

b. DEFICIENCY: NONE

c. AREAS REQUIRING CORRECTIVE ACTION: NONE

d. NOT DEMONSTRATED: NONE

e. PRIOR ARCAs - RESOLVED: NONE

f. PRIOR ARCAs - UNRESOLVED: NONE

2.1.4 Protective Actions for Schools

The principals of Davidson, Cornelius, Huntersville, and Barnette Elementary Schools demonstrated a thorough working knowledge of planning and response procedures for their individual schools. All proved to be knowledgeable of the notification, protective action and relocation processes. Transportation requirements were accurately described and all demonstrated the preparation to proactively protect the student and staff populations should a radiological emergency occur at the McGuire Nuclear Station.

a. MET: Criteria 1.a.1, 3.a.1, 3.b.1 and 3.c.2

b. DEFICIENCY: NONE

c. AREAS REQUIRING CORRECTIVE ACTION: NONE

d. NOT DEMONSTRATED: NONE

e. PRIOR ARCAs - RESOLVED: NONE

f. PRIOR ARCAs - UNRESOLVED: NONE

2.1.5 Emergency Worker & Equipment Monitoring & Decontamination

The Charlotte Fire Department (CFD) successfully demonstrated the capability to monitor and decontaminate emergency workers and their equipment at Fire Station #27. CFD firefighters performed their duties in a professional manner at all times. They demonstrated good knowledge of monitoring and decontamination techniques to assist emergency workers reporting to the station to put personnel and equipment back in service in a timely manner. The use of a team leader at each area, i.e. initial vehicle monitoring, was effective in ensuring that all appropriate actions were taken. The firefighters also demonstrated good awareness of their individual responsibilities in controlling their own exposure.

a. MET: Criteria 1.e.1, 3.a.1, 6.a.1 and 6.b.1

b. DEFICIENCY: NONE

c. AREAS REQUIRING CORRECTIVE ACTION: NONE

d. NOT DEMONSTRATED: NONE

e. PRIOR ARCAs - RESOLVED: NONE

f. PRIOR ARCAs - UNRESOLVED: NONE

2.1.6 MS-1 Drill

The Charlotte-Mecklenburg County Emergency Medical Services (MEDIC) ambulance team and the Carolinas Medical Center-University (CMC-U) emergency room personnel demonstrated the capability to maintain the emphasis on medical care while providing other services for the victim, i.e. transporting, monitoring, and decontaminating an injured contaminated patient. The hospital team demonstrated strict adherence to their procedure. The doctor and nurses worked efficiently throughout the entire process and all demonstrated good contamination control practices. The radiological monitoring techniques used, including documentation, were excellent. Overall, the ambulance crew and emergency room team conducted their responsibilities professionally and competently, and demonstrated their ability to care for an injured and contaminated patient.

a. **MET:** Criterion 6.d.1

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

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

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

2.2 CATAWBA COUNTY

2.2.1 Emergency Operations Center

The Catawba EOC Director and Emergency Coordinator exhibited good direction and control throughout the exercise. Direction and control in the EOC was guided by both established procedures and forward thinking. The EOC was activated in accordance with county plans and procedures, and the EOC staff was well versed in the County operational procedures. Briefings were held periodically to keep staff informed of changes in plant conditions and ECLs. The EOC staff members were knowledgeable and effectively carried out their responsibilities, which allowed the Director and Emergency Coordinator to focus on their responsibilities. The Director and his EOC staff effectively demonstrated the ability to manage county emergency response, and to protect the public and emergency workers.

a. **MET:** Criteria 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2, 2.c.1, 3.b.1, 3.c.1, 3.c.2, 3.d.1, 3.d.2, 5.a.1, 5.a.3 and 5.b.1

b. **DEFICIENCY:** NONE

c. **ARCA:** NONE

d. **NOT DEMONSTRATED:** NONE

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

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

2.2.2 Traffic Control Points

County TCP interviews were completed with representatives of the Catawba County Sheriff's Office, Maiden City Police Department, and the North Carolina State Highway Patrol. All officers were very knowledgeable of the dosimetry and information contained in the Traffic Control Kits that would be issued to them. They also demonstrated their knowledge of dosimetry operations, recording and reporting results, dose limit requirements, and the use of KI. The officers were aware of their duties at the TCPs, what instructions they should provide to evacuees, and what actions to take to remove any impediments to evacuation routes.

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

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

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

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

2.2.3 Backup Route Alerting

The Catawba County Radiological Officer/Emergency Management Coordinator and the Fire Services representative successfully demonstrated backup route alerting and emergency worker exposure control. Although no siren failure occurred during the exercise, both were knowledgeable about the process for initiating alert notification procedures as required. Both were professional and competent in the execution of their assigned emergency duties.

a. **MET:** Criteria 3.a.1 and 5.a.3

b. **DEFICIENCY:** NONE

c. **ARCA:** NONE

d. NOT DEMONSTRATED: NONE

e. PRIOR ARCAs - RESOLVED: NONE

f. PRIOR ARCAs - UNRESOLVED: NONE

2.2.4 Reception and Congregate Care

The Catawba County Reception and Congregate Care Center (RCCC) was located at Maiden Middle School in Maiden, North Carolina. Monitoring and decontamination was performed by firefighters from the Maiden Volunteer Fire Department, and the RCCC was operated by the Catawba Valley Chapter of the American Red Cross (ARC), with assistance from the Catawba County Department of Social Services (DSS) and Amateur Radio Emergency Services (ARES)/Radio Amateur Civil Emergency Service (RACES) personnel. The firefighters successfully demonstrated the operation of two portal monitors to conduct initial radiological contamination screening of evacuees, and demonstrated proper personnel decontamination as necessary. Use of fire department escorts, control lines, signage, and effective communication between the firefighters and the ARC Security and Safety Officer ensured no evacuees were permitted to enter the RCCC without having been monitored and cleared for entry. Reception registration was well organized and staffed with competent personnel. The ARC Shelter Manager was knowledgeable of center operations and did a commendable job in directing shelter activities. Support personnel effectively demonstrated the assessment of medical and counseling needs of the evacuees and appropriate referral for those evacuees with special needs.

a. MET: Criteria 1.e.1, 3.a.1, 6.a.1 and 6.c.1

b. DEFICIENCY: NONE

c. AREAS REQUIRING CORRECTIVE ACTION: NONE

d. NOT DEMONSTRATED: NONE

e. PRIOR ARCA - RESOLVED: NONE

f. PRIOR ARCA - UNRESOLVED: NONE

2.3 GASTON COUNTY

2.3.1 Emergency Operations Center

The Emergency Management (EM) Coordinator, EOC Operations Chief, and the EOC staff demonstrated a deep understanding of their county, and the response concepts of the county plan to protect the health and safety of both the general population and the emergency workers. The EM Coordinator leveraged this event to provide training to

elected officials while simultaneously managing the county emergency response. The Operations Chief focused the staff's efforts on attainable goals and helped establish an effective solution for a communication failure. Following the failure of the Decision Line telephone system, all the exercise participants had switched to using a commercial telephone conference line as the back-up. However, the lack of a mute capability on one of the phones used during the conference calls made it difficult for all participants to understand the conversations. The Operations Chief initiated the change to use the VIPER radio system, which solved the problem. This was typical of the way county and city officials were fully involved in the decision making process and worked together to solve problems. Overall, the EOC staff was very knowledgeable of their agency roles and the requirements contained in the plans and procedures for their respective departments.

a. **MET:** Criteria 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2, 2.c.1, 3.b.1, 3.c.1, 3.c.2, 3.d.1, 3.d.2, 5.a.1, 5.a.3 and 5.b.1

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

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

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

2.3.2 Traffic Control Points

Emergency management personnel and law enforcement officers of the Gaston County Sheriff's Office, Mt. Holley Police Department, Gaston County Police Department, and Stanley Police Department very accurately described the procedures to establish county TCPs. The officers accurately described the use of personal dosimetry, the taking and recording of readings, exposure limits, and general information related to KI. They demonstrated a thorough knowledge of how to establish TCPs, conduct TCP operations, and the procedures to remove impediments to traffic.

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

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

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

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

2.3.3 Backup Route Alerting

The county Fire Marshal and a member of the Stanley Volunteer Fire Department were interviewed about the methods and procedures for accomplishing backup route alerting in Gaston County. They were knowledgeable about KI, exposure limits, recording information, and returning their equipment. They described how they would report to a staging area and receive a radiological briefing, and be issued equipment and maps in the event of a siren failure. They referred to a map of the area and discussed which routes would be implemented, what agencies had which assigned zones, what routes they would take through the zone, what pre-scripted messages to read, and how often to stop and read the messages. As described, this process could easily be conducted within 45 minutes of the siren failure.

a. **MET:** Criteria 3.a.1 and 5.a.3

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

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

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

2.3.4 Emergency Worker & Equipment Monitoring & Decontamination

The Lowell Volunteer Fire Department (LVFD) successfully demonstrated the capability to monitor and decontaminate emergency workers and their equipment at Lowell Fire Department Station #17. The facility was set up and processes were fully followed in accordance with the Lowell Fire Department standard operating guide (SOG). The volunteer firemen worked efficiently while performing their duties, and were knowledgeable in the exposure control and contamination control processes. The LVFD firefighters demonstrated they would be able provide appropriate monitoring and decontamination assistance to other emergency workers reporting to the station.

a. **MET:** Criteria 1.e.1, 3.a.1, 6.a.1 and 6.b.1

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs – RESOLVED:** NONE

f. PRIOR ARCAs - UNRESOLVED: NONE

2.4 IREDELL COUNTY

2.4.1 Emergency Operations Center

The Deputy County Manager and Deputy EM Director demonstrated excellent direction and control in the management of Iredell County's response to a radiological release. Agency representatives provided sound guidance and were included in the decision-making process. They demonstrated a clear understanding of their agency roles and were proactive in preparing for eventual contingencies. The leadership and staff of the EOC were well prepared to implement procedures to safeguard the county's citizens.

a. MET: Criteria 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2, 2.c.1, 3.b.1, 3.c.1, 3.c.2, 3.d.1, 3.d.2, 5.a.1, 5.a.3 and 5.b.1

b. DEFICIENCY: NONE

c. AREAS REQUIRING CORRECTIVE ACTION: NONE

d. NOT DEMONSTRATED: NONE

e. PRIOR ARCAs - RESOLVED: NONE

f. PRIOR ARCAs - UNRESOLVED: NONE

2.4.2 Traffic Control Points

Officers from the Iredell County Sheriff's Office and the North Carolina State Highway Patrol participated in an interview on establishing TCPs. The officers were thoroughly familiar with radiological requirements. Officers understood the location, staffing, and implementation of TCPs. The officers were knowledgeable of locations to direct evacuees and the applicable emergency worker decontamination station, and they knew a variety of resources available for traffic impediment removal.

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

b. DEFICIENCY: NONE

c. AREAS REQUIRING CORRECTIVE ACTION: NONE

d. NOT DEMONSTRATED: NONE

e. PRIOR ARCAs - RESOLVED: NONE

f. PRIOR ARCAs - UNRESOLVED: NONE

2.4.3 Backup Route Alerting

The Iredell County Radiological Officer described backup route alerting procedures and emergency worker exposure control at the EOC by interview in accordance with the EOP. He was knowledgeable about the process for initiating alert notification procedures as required and demonstrated good competence in the implementation of emergency worker exposure control methods per the county plan.

a. MET: Criteria 3.a.1 and 5.a.3

b. DEFICIENCY: NONE

c. ARCA: NONE

d. NOT DEMONSTRATED: NONE

e. PRIOR ARCAs - RESOLVED: NONE

f. PRIOR ARCAs - UNRESOLVED: NONE

2.4.4 Protective Actions for Schools

The Iredell-Statesville School District demonstrated its ability to safeguard students, staff, and faculty within the 10-mile EPZ by interview. Representatives of the District Office and the principal of Brawley Middle School described the procedures outlined in county, district, and school emergency plans. The close collaboration and coordination between the school district and county emergency management personnel was obvious and effective, and all personnel were well prepared for a radiological emergency.

a. MET: Criteria 1.a.1, 3.a.1, 3.b.2 and 3.c.2

b. DEFICIENCY: NONE

c. AREAS REQUIRING CORRECTIVE ACTION: NONE

d. NOT DEMONSTRATED: NONE

e. PRIOR ARCAs – RESOLVED: NONE

f. PRIOR ARCAs – UNRESOLVED: NONE

2.4.5 Emergency Worker & Equipment Monitoring & Decontamination

Emergency worker monitoring and decontamination was demonstrated at the northbound I-77 Marker 39 Rest Area. Support for operations was provided by the Mooresville Fire Department, Statesville Fire Department, Iredell County Emergency Medical Services, Iredell County Emergency Management Office, Iredell County Health Department, Iredell County Fire Marshal's Office, Shepherds Volunteer Fire Department, Iredell County Solid Waste Office, and Iredell County Animal Services. Well trained emergency workers successfully performed monitoring and decontamination of both personnel and equipment at this location. There were ample numbers of personnel available and all participants met their assigned requirements.

a. **MET:** Criteria 1.e.1, 3.a.1, 6.a.1 and 6.b.1

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs – RESOLVED:** NONE

f. **PRIOR ARCAs – UNRESOLVED:** NONE

2.4.6 Reception and Congregate Care

Evacuee reception, monitoring, decontamination, and congregate care were demonstrated at South Iredell High School. The evacuee monitoring and decontamination area was staffed by members of the Troutman Fire Department, Statesville Fire Department, Iredell County Emergency Medical Services, Iredell County Animal Services, Iredell County Health Department, Iredell County Fire Marshal's Office, and Iredell County Emergency Communications Center. Sufficient numbers of personnel were available to perform monitoring and decontamination functions. Contamination control and exposure control were well implemented. Support for registration and congregate care was provided by the Greater Carolinas Chapter of the ARC. Congregate care was well managed and staffed appropriately. All participants met assigned requirements to appropriately perform reception, monitoring, decontamination, and congregate care.

a. **MET:** Criteria 1.e.1, 3.a.1, 6.a.1 and 6.c.1

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. PRIOR ARCAs – RESOLVED: NONE

f. PRIOR ARCAs – UNRESOLVED: NONE

2.5 LINCOLN COUNTY

2.5.1 Emergency Operations Center

The EOC was well managed, with efficiency and cooperation from all personnel involved. Despite communications difficulties the EM Director maintained continuous contact with all jurisdictions, and he effectively coordinated all decisions when necessary. There were several new personnel at the EOC, and they performed in a truly professional manner. The warning point at the Sheriff's Office was well equipped, and the notification process was clearly understood by all the communications personnel. The leadership skills of the EM Director were commendable.

a. MET: Criteria 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2, 2.c.1, 3.b.1, 3.c.1, 3.c.2, 3.d.1, 3.d.2, 5.a.1, 5.a.3 and 5.b.1

b. DEFICIENCY: NONE

c. AREAS REQUIRING CORRECTIVE ACTION: NONE

d. NOT DEMONSTRATED: NONE

e. PRIOR ARCAs – RESOLVED: NONE

f. PRIOR ARCAs – UNRESOLVED: NONE

2.5.2 Traffic Control Points

Law enforcement officers of the Lincoln County Sheriff's Office, Lincolnton Police Department, and North Carolina State Highway Patrol competently demonstrated their ability to set up and maintain TCPs while protecting themselves from unsafe radiation exposure. The officers understood the concepts of radiation and knew where to obtain the Radiation Kit which contains personal dosimetry, KI, and associated forms. They knew how to zero, read, and correctly wear their dosimetry, and they know how to correctly record the information on the provided forms. They also understood the purpose of taking KI and when it should be self-administered, and the call-in and turn-back values for radiation exposure. They knew the locations of pre-determined TCPs and understood their roles in directing the public to safety.

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

b. DEFICIENCY: NONE

c. AREAS REQUIRING CORRECTIVE ACTION: NONE

d. NOT DEMONSTRATED: NONE

e. PRIOR ARCAs – RESOLVED: NONE

f. PRIOR ARCAs – UNRESOLVED: NONE

2.5.3 Backup Route Alerting

Backup route alerting in Lincoln County was discussed by interview with the Lincoln County Fire Marshal, who had a through understanding of the requirements and the resources at his disposal. Utilizing nine well trained fire departments, he demonstrated that if a siren failure occurred, he could implement backup route alerting so that the residents in the identified zone would be rapidly and effectively notified.

a. MET: Criteria 3.a.1 and 5.a.3

b. DEFICIENCY: NONE

c. AREAS REQUIRING CORRECTIVE ACTION: NONE

d. NOT DEMONSTRATED: NONE

e. PRIOR ARCAs – RESOLVED: NONE

f. PRIOR ARCAs - UNRESOLVED: NONE

2.5.4 Protective Actions for Schools

The Lincoln County Public Schools Superintendent, Transportation Director, and the principal of Rock Springs Elementary School concisely described their plans and procedures by interview. They were fully knowledgeable of the process they would implement at the school district and their individual and collective responsibilities. Lincoln County had excellent procedures in place to ensure parents, staff, and faculty remained informed as necessary, and had sufficient buses to relocate school personnel within the county portion of the EPZ in the event of a radiological emergency.

a. MET: Criteria 1.a.1, 3.a.1, 3.b.2 and 3.c.2

b. DEFICIENCY: NONE

c. AREAS REQUIRING CORRECTIVE ACTION: NONE

d. NOT DEMONSTRATED: NONE

e. PRIOR ARCAs – RESOLVED: NONE

f. PRIOR ARCAs – UNRESOLVED: NONE

2.5.5 Reception and Congregate Care

Lincoln County successfully demonstrated evacuee registration, monitoring, decontamination, and congregate care during a demonstration at West Lincoln High School. The personnel representing Lincoln County Emergency Management, Lincoln County Fire Department, Department of Social Services, Department of Health, Pathways, Lincoln County Chapter of the ARC, Lincoln County ARES/RACES, Howards Creek Volunteer Fire Department, and the Cleveland County Hazardous Materials Team all demonstrated a positive and professional attitude in the accomplishment of their tasks.

a. MET: Criteria 1.e.1, 3.a.1, 6.a.1 and 6.c.1

b. DEFICIENCY: NONE

c. AREAS REQUIRING CORRECTIVE ACTION: NONE

d. NOT DEMONSTRATED: NONE

e. PRIOR ARCAs – RESOLVED: NONE

f. PRIOR ARCAs – UNRESOLVED: NONE

3. HOST JURISDICTIONS

3.1 CABARRUS COUNTY

3.1.1 Emergency Operations Center

The Cabarrus County EM Coordinator successfully demonstrated his ability to provide direction, control, coordination, and efficient management of response actions. The EOC staff was meticulously briefed of the evolving situation through a series of detailed briefings delivered by the EM Coordinator. The new facility and equipment greatly enhanced and complemented the capabilities of the county to ensure public safety. The Director and his staff were fully prepared to carry out their responsibilities, and their dedication and desire to provide reception and congregate care to evacuees from the risk counties was commendable.

a. MET: Criteria 1.a.1, 1.b.1, 1.c.1, 1.d.1 and 1.e.1

b. DEFICIENCY: NONE

c. AREAS REQUIRING CORRECTIVE ACTION: NONE

d. NOT DEMONSTRATED: NONE

e. PRIOR ARCAs – RESOLVED: NONE

f. PRIOR ARCAs – UNRESOLVED: NONE

3.1.2 Traffic Control Points

The Cabarrus County Sheriff's Office and the Kannapolis Police Department both provided two law enforcement officers who participated in process interviews on TCP operations. The four officers demonstrated an excellent working knowledge of TCP mobilization, staffing, procedures, equipment, and radiological protection. Each officer had supplemental information to describe their responsibilities and information to assist in responding to evacuee queries. The officers were competent in how to execute the assigned tasks and how to obtain assistance to overcome any impediments to traffic flow.

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

b. DEFICIENCY: NONE

c. AREAS REQUIRING CORRECTIVE ACTION: NONE

d. NOT DEMONSTRATED: NONE

e. PRIOR ARCAs – RESOLVED: NONE

f. PRIOR ARCAs - UNRESOLVED: NONE

3.1.3 Reception and Congregate Care

Reception, monitoring, decontamination, and congregate care were demonstrated at the Northwest Cabarrus Middle School. Support for overall activities was provided by the Kannapolis Fire Department, Cabarrus Rescue Squad, Cabarrus County Emergency Management, Concord Fire Department Hazardous Materials Team, Cabarrus Health Alliance, Cabarrus County Department of Social Services, and the Cabarrus Chapter of the ARC. Evacuees were expeditiously monitored and registered. Congregate care was well managed and staffed appropriately. All participants met assigned requirements and functioned well as a team.

a. MET: Criteria 1.e.1, 3.a.1, 6.a.1 and 6.c.1

b. DEFICIENCY: NONE

c. AREAS REQUIRING CORRECTIVE ACTION: NONE

d. NOT DEMONSTRATED: NONE

e. PRIOR ARCAs - RESOLVED: NONE

f. PRIOR ARCAs - UNRESOLVED: NONE

APPENDIX 1

ACRONYMS AND ABBREVIATIONS

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

ARC	American Red Cross
ARCA	Area Requiring Corrective Action
ARES	Amateur Radio Emergency Services
CDE	Committed Dose Equivalent
CD-V	Civil Defense-V*(followed by the CD instrument number)*
CEDE	Committed Effective Dose Equivalent
CFD	Charlotte Fire Department
CFR	Code of Federal Regulations
CF	Condensate Feed
CMC-U	Carolinas Medical Center-University
CMPD	Charlotte-Mecklenburg Police Department
DEM	Division of Emergency Management
D/G	Diesel Generator
DHHS	Department of Health and Human Services
DOC	Department of Commerce
DOE	Department of Energy
DOI	Department of the Interior
DOT	Department of Transportation
DRD	Direct Reading Dosimeter
DSS	Department of Social Services
EAS	Emergency Alert System
EC	Emergency Coordinator
ECL	Emergency Classification Level
EMA	Emergency Management Agency
EMC	Emergency Management Coordinator
EMD	Emergency Management Director
EMS	Emergency Medical Services
ENF	Emergency Notification Form
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EOFD	Emergency Operations Facility Director
EPA	Environmental Protection Agency
EPZ	Emergency Planning Zone
ER	Emergency Room
ERO	Emergency Response Organization
EWD	Emergency Worker Decontamination
FDA	Food and Drug Administration
FEMA	Federal Emergency Management Agency
FMT	Field Monitoring Team

FR	Federal Register
FTL	Field Team Leader
GE	General Emergency
IC	Incident Command
IC	Initiating Condition
ICP	Incident Command Post
JIC	Joint Information Center
KI	Potassium Iodide
LVFD	Lowell Volunteer Fire Department
MHz	Mega Hertz
mrem	millirem
MSIV	Main Steam Isolation Valve
NCDT	North Carolina Department of Transportation
NCDA	North Carolina Department of Agriculture
NCEM	North Carolina Emergency Management
NCS	Nuclear Coolant System
NCSHP	North Carolina State Highway Patrol
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*
OSC	Operations Support Center
OSM	Operations Shift Manager
ORO	Offsite Response Organization
PAD	Protective Action Decision
PAR	Protective Action Recommendation
PIO	Public Information Officer
PRD	Permanent Record Dosimeter
RAC	Regional Assistance Committee
RACES	Radio Amateur Civil Emergency Service
rem	roentgen equivalent in man
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
RPS	Radiation Protection Section
SAE	Site Area Emergency
SEOC	State Emergency Operations Center
SERT	State Emergency Response Team
S/G	Steam Generator
SGTR	Steam Generator Tube Rupture

SOG	Standard Operating Guide
SOP	Standard Operating Procedures
SSF	Standby Shutdown Facility
SSS	Selective Signaling System
TCP	Traffic Control Point
TEDE	Total Effective Dose Equivalent
TSC	Technical Support Center
USDA	U.S. Department of Agriculture
VIPER	Voice Interoperability Plan for Emergency Responders
WBO-RCC	Western Branch Office- Regional Coordination Center

APPENDIX 2

EXERCISE EVALUATORS AND TEAM LEADERS

The following is a list of the personnel who participated in or evaluated the McGuire Nuclear Station exercise on August 18, 2009. The organizations represented are indicated by the following abbreviations:

EPA - Environmental Protection Agency
FEMA - Federal Emergency Management Agency
ICF - ICF International

Conrad S. Burnside **RAC Chairman**

Kevin R. Keyes **Section Chief and FEMA Liaison to NCEM**

Michael Dolder **Site Specialist**

EVALUATION SITE	**EVALUATOR**	**ORGANIZATION**
State of North Carolina – NCEM Director: Mr. Doug Hoell, Jr.		
State Emergency Operations Center	Michael Dolder	FEMA
	P.J. Nied	ICF
Dose Assessment (SEOC)	Jim Hickey	ICF
	Jill Leatherman	ICF
NCEM- Western Branch Office	Rick Button	EPA
Emergency Operations Facility	Larry Robertson	FEMA
Joint Information Center	Deborah Bell	ICF
	Karl Fippenger	ICF
Waterway Warning	Michael Dolder	FEMA
	Joe Harworth	FEMA
	Bill Larrabee	ICF
	Alan Bevan	ICF
	Marynette Herndon	ICF
	Jill Leatherman	ICF
	P.J. Nied	ICF
Charlotte-Mecklenburg County – EM Director: Mr. L. Wayne Broome		
Emergency Operations Center	Matthew Bradley	FEMA
	Jim Greer	ICF
	Bart Ray	ICF

Traffic Control Points	Bill Larrabee	ICF
Backup Route Alerting	Bart Ray	ICF
Protective Actions for Schools	P.J. Nied	ICF
	Alan Bevan	ICF
Emergency Worker and Equipment Monitoring and Decontamination	Alan Bevan	ICF
MS-1 Drill	Alan Bevan	ICF
	Jill Leatherman	ICF

Catawba County – EM Director: Mr. David Weldon

Emergency Operations Center	Odis Spencer	FEMA
	Joe Inman	ICF
Traffic Control Points	Joe Harworth	FEMA
Backup Route Alerting	Joe Inman	ICF
Reception and Congregate Care	Joe Harworth	FEMA
	Alan Bevan	ICF

Gaston County – EM Coordinator: Mr. Tommy Almond

Emergency Operations Center	Obhie Robinson	FEMA
	Bob Lemeshka	ICF
Traffic Control Points	Alan Bevan	ICF
Backup Route Alerting	Bob Lemeshka	ICF
Emergency Worker and Equipment Monitoring and Decontamination	Alan Bevan	ICF

Iredell County – EM Director: Mr. Dave Martin

Emergency Operations Center	Bill Larrabee	ICF
	Mike Burriss	ICF
Traffic Control Points	Jill Leatherman	ICF
Backup Route Alerting	Mike Burriss	ICF
Protective Actions for Schools	Bill Larrabee	ICF
Emergency Worker and Equipment	Jill Leatherman	ICF
Monitoring and Decontamination	Marynette Herndon	ICF

Reception and Congregate Care	Jill Leatherman	ICF
	Marynette Herndon	ICF

Lincoln County – EM Director: Mr. Bill Summers

Emergency Operations Center	Helen Wilgus	FEMA
	Rosemary Samsel	ICF
	William O'Brien	ICF
Traffic Control Points	Marynette Herndon	ICF
Backup Route Alerting	William O'Brien	ICF
Protective Actions for Schools	Bill Larrabee	ICF
Reception and Congregate Care	Bill Larrabee	ICF
	P.J. Nied	ICF

Cabarrus County – EM Director: Mr. Bobby Smith

Emergency Operations Center	Gerald McLemore	FEMA
	Mike Henry	ICF
Traffic Control Points	P.J. Nied	ICF
Backup Route Alerting	Mike Henry	ICF
Reception and Congregate Care	Jill Leatherman	ICF
	Marynette Herndon	ICF

APPENDIX 3

EXERCISE CRITERIA AND EXTENT-OF-PLAY AGREEMENT

This appendix lists the exercise criteria and the extent-of-play agreement for the McGuire Nuclear Station Exercise.

A. Exercise Criterion Matrix

This subsection contains the specific radiological emergency preparedness criteria.

B. Extent-of-Play Agreement

This subsection contains the extent of play agreement submitted by the State of North Carolina and approved by FEMA Region IV. The extent of play agreement includes any significant modification or change in the level of demonstration of each exercise criterion listed in Subsection A of this appendix.

McGuire 2009 Partial Participation Plume
Exercise Criterion Matrix

Evaluation Sub Elements (EPZ) = Emergency Planning Zone County (IPZ) = Ingestion Pathway Zone County E – Evaluated T – Training Only O – Off Scenario	NC SERT	RAD Protection	Mecklenburg EPZ	Catawba EPZ	Gaston EPZ	Iredell EPZ	Lincoln EPZ	Cabarrus HOST
1. Emergency Operations Management								
1.a.1 Mobilization of Response Personnel	E	E	E	E	E	E	E	E
1.b.1 Facilities	Baseline Set 2002	Baseline Set 2002	Baseline Set 2006	Baseline Set 2002	Baseline Set 2002	Baseline Set 2002	Baseline Set 2002	E
1.c.1 Direction and Control	E	E	E	E	E	E	E	E
1.d.1 Communications Equipment	E	E	E	E	E	E	E	E
1.e.1 Equipment and Supplies to Support Operations	E	E	E-O	E-O	E-O	E-O	E-O	E-O
2. Protective Action Decision Making								
2.a.1 Emergency Worker Exposure Control	E	E	E	E	E	E	E	N/A
2.b.1 Radiological PAR Based on Available Information	E	E	E	E	E	E	E	N/A
2.b.2 Radiological PAD for General Public	E	E	E	E	E	E	E	N/A
2.c.1 PAD for Protection of Special Populations	N/A	N/A	E	E	E	E	E	N/A
2.d.1 Radiological Assessment and Decision Making for Ingestion Exposure	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008
2.e.1 Radiological Assessment and Decision Making for Relocation, Re-entry & Return	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008
3. Protective Action Implementation								
3.a.1 Implementation of Emergency Worker Exposure Control	E	E	E	E	E	E	E	N/A
3.b.1 Implementation of KI Decisions	E	E	E	E	E	E	E	E
3.c.1 Implementation of PADs for Special Populations.	E	E	E	E	E	E	E	N/A
3.c.2 Implementation of PADs for Schools	N/A	N/A	E-O	N/A	McGuire Exercise 2007	E-O	E-O	N/A
3.d.1 Implementation of Traffic and Access Control	E	N/A	E	E	E	E	E	E
3.d.2. Impediments to Traffic and Access Control	E-O	N/A	E-O	E-O	E-O	E-O	E-O	E-O
3.e.1 Implementation of Ingestion Pathway Decisions Using Adequate Information	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008
3.e.2 Implementation of Ingestion Pathway Decisions Showing Instructional Materials	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008
3.f.1 Implement Relocation, Reentry, and Return Decisions	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008	Catawba IPZ Exercise 2008

Evaluation Sub Elements (EPZ) = Emergency Planning Zone County (IPZ) = Ingestion Pathway Zone County E – Evaluated T – Training Only O – Off Scenario	NC SERT	RAD Protection	Mecklenburg EPZ	Catawba EPZ	Gaston EPZ	Iredell EPZ	Lincoln EPZ	Cabarrus HOST
4. Field Measurement and Analysis								
4.a.1. Plume Phase Field Measurements and Analysis Equipment	N/A	T	N/A	N/A	N/A	N/A	N/A	N/A
4.a.2. Plume Phase Field Measurements and Analysis Management	N/A	T	N/A	N/A	N/A	N/A	N/A	N/A
4.a.3. Plume Phase Field Measurements and Analysis Procedures	N/A	T	N/A	N/A	N/A	N/A	N/A	N/A
4.b.1 Post Plume Phase Field Measurements and Sampling	N/A	Catawba IPZ Exercise 2008	N/A	N/A	N/A	N/A	N/A	N/A
4.c.1 Laboratory Operations Analyses	N/A	T	N/A	N/A	N/A	N/A	N/A	N/A
5. Emergency Notification and Public Information								
5.a.1 Activation of the Prompt Alert and Notification System Activities	E	N/A	E	E	E	E	E	N/A
5.a.2 Activation of the Prompt Alert and Notification Fast Breaker	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5.a.3 Exception Areas and Backup Alert and Notification	E-O	N/A	E	E	E	E	E	N/A
5.b.1 Emergency Information and Instructions for the Public and the Media	E	N/A	E	E	E	E	E	N/A
6. Support Operations/Facilities								
6.a.1 Monitoring & Decontamination of Evacuees/Emergency Workers; Registration of Evacuees	N/A	E-O[1]	N/A	E-O	E-O	E-O	E-O	E-O[2]
6.b.1 Monitoring & Decontamination of Emergency Worker Equipment	N/A	N/A	E-O	E-O	E-O	E-O	E-O	E-O
6.c.1 Temporary Care of Evacuees	N/A	E-O[1]	E	E-O	E-O	E-O	E-O	E-O
6.d.1 Transportation and Treatment of Contaminated Injured Individuals (MS-1 Drill)	N/A	N/A	E-O CMC-University	N/A	N/A	N/A	N/A	N/A

Note 1: Charlotte-Mecklenburg County is exempt from demonstration of Evacuee Registration and Temporary Care per FEMA Letter 24 January 2008. Criteria demonstrated during 2008 Catawba IPZ Exercise. Criteria will be demonstrated during 2011 McGuire Exercise.

Note 2: Emergency Worker and Equipment Monitoring and Decontamination: As a Host County, Cabarrus County does not have emergency workers within the 10-mile EPZ.

McGuire Nuclear Station
2009 Extent of Play Agreement

A. General Information

- Activities will be conducted as follows:
  - Off-Scenario – Monday, August 3 – Friday, August 7, 2009
  - Evaluated exercise - Tuesday, August 18, 2009

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

- Activities will begin at approximately 8:00 a.m. and will conclude when all exercise criteria have been accomplished and verified by the Chief Controller's for the State and Utility.

- A silent test of the sirens will be used to simulate the sounding of sirens at Site Area Emergency and sirens will be totally simulated at General Emergency.

- State and local response personnel may **NOT** pre-position staff at their EOC. Exercise participants are expected to respond to their respective exercise locations from their normal work stations. Exceptions to this will be made for Public Information and Radiation Protection participants who may stage in the local area (i.e., hotel) and deploy to their exercise sites upon notification of activation. Deployment following notification will be delayed 10 minutes for every 1 hour of travel time required for actual deployment.

- Utility will provide a liaison to the State EOC, Western Branch Office, Catawba County EOC, Gaston County EOC, Iredell County EOC, Lincoln County EOC and Mecklenburg County EOC.

- A state or county escort will accompany Federal Evaluators to out-of-sequence demonstrations.

- A State Controller will be located in the State EOC, Catawba County EOC, Gaston County EOC, Iredell County EOC, Lincoln County EOC, and the JIC.

- ***The State Controller located in each EPZ county EOC will also serve as the SERT liaison to the county.***

- Area Coordinators will deploy to the Western Branch Office and not to county EOCs during this exercise.

- Exercise participants will have the opportunity to remediate and re-demonstrate exercise criterion immediately upon identifying any errors with the approval of the federal evaluator during field demonstrations.
- Evaluation Area 4 - Field Measurement and Analysis activity will be for Training only. Prepositioning of the Radiation Protection Mobile Lab will be permitted.

- Exercise guidance will be conducted under guidance found in the "Interim Radiological Emergency Preparedness (REP) Program Manual, August 2002".

- All participants are in agreement with exercise evaluation criterion as found in "Interim Radiological Emergency Preparedness (REP) Program Manual, August 2002" as modified by exceptions listed in the approved Extent of Play Agreement.

- Rumor control calls will be conducted from a controlled calling cell established at the utility and at the State EOC.

B. Meeting Times

I. Federal Evaluator Briefing:
Charlotte Police and Fire Academy
1750 Shopton Road
Charlotte, NC 28217

Date & Time: 2:00 p.m., Monday, August 17, 2009

II. State and County Critique: (IF NECESSARY)
Charlotte Police and Fire Academy
1750 Shopton Road
Charlotte, NC 28217

Date & Time: 2:00 p.m., Wednesday, August 19, 2009

III. Participant's Critique:

Charlotte Police and Fire Academy
1750 Shopton Road
Charlotte, NC 28217

Date & Time: 10:00 a.m. Thursday, August 20, 2009

IV. Public Briefing:

Charlotte Police and Fire Academy
1750 Shopton Road
Charlotte, NC 28217
Date & Time: 11:00 a.m. Thursday, August 20, 2009

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, NC Radiation Protection, Mecklenburg Catawba, Gaston, Iredell, Lincoln and Cabarrus Counties

- State and local EOCs will be activated and staffed based on standard operational guidelines/procedures for that agency.

- State and local response personnel may **NOT** pre-position staff at their EOC. Exercise participants are expected to respond to their respective exercise locations from their normal work stations. Exceptions to this will be made for Public Information and Radiation Protection participants who may stage in the local area (i.e., hotel) and deploy to their exercise sites upon notification of activation. Deployment following notification will be delayed 10 minutes for every 1 hour of travel time required for actual deployment.

- ***Federal Evaluators will need a walk-through explanation of the EOC activation process, to include the notification process for key staff.***

1.b. – Facilities

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

EXTENT OF PLAY:

Participant: Cabarrus County

Location: Cabarrus County Emergency Management
Suite FM 601
30 Corban Avenue
Concord, NC 28025

Date and Time: Tuesday, August 4, 2009 at 3:00 p.m. and On-scenario, Tuesday, August 18, 2009

The Cabarrus County EOC is in a new facility that has not yet been evaluated.

State and Local emergency operations Centers (EOCs) were baselined during the McGuire 2002 exercise (Mecklenburg Co during 2006 Catawba exercise)

FEMA will not formally evaluate this criterion. (FEMA Letter dated May 3, 2005)

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, Radiation Protection, Mecklenburg, Catawba, Gaston, Iredell, Lincoln and Cabarrus Counties

- Mecklenburg County is the lead-coordinating county for the McGuire NS Counties. Following the simulated sounding of sirens and release of EAS message at Site Area Emergency, the State will be requested to assume direction and control.

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, Mecklenburg, Catawba, Gaston, Iredell, Lincoln and Cabarrus Counties

- Communication breakdown/failures will be discussed with the federal evaluators during the exercise at state and county EOCs.

1.e – Equipment and Supplies to Support Operation:

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

EXTENT OF PLAY:

Participants: NC SERT, Mecklenburg, Catawba, Gaston, Iredell, Lincoln and Cabarrus Counties

- Availability and currency of emergency worker KI will be verified by a FEMA Staff Assistance Visit (SAV) to the EPZ Counties prior to or during the exercise.

- Dosimeters will be inspected by FEMA during the Staff Assistance Visit to the EPZ Counties prior to or during the exercise.

Charlotte/Mecklenburg County:

Staff Assistance Visit will take place off-scenario, **Monday, August 3, 2009 at 2:00 p.m.**

Location: Charlotte-Mecklenburg Emergency Management Office
228 East 9th Street
Charlotte, NC 28202-2530

Catawba County:

Staff Assistance Visit will take place off-scenario, **Thursday, August 6, 2009 at 2:00 p.m.**

Location: Catawba Co. EM Office
100-A Southwest Blvd
Newton, NC 28658

Gaston County:

Staff Assistance Visit will take place off-scenario, **Monday, August 3, 2009 at 4:00 p.m.**

Location: Gaston County EOC
615 North Highland Ave
Gastonia, NC 28052

Iredell County:

Staff Assistance Visit will take place off-scenario, **Tuesday, August 4, 2009 at 9:30 a.m.**

Location: Iredell County EOC
Hall of Justice Annex (LL)
201 East Water Street
Statesville, NC 28677-5200

Lincoln County:

Staff Assistance Visit will take place off-scenario, **Monday, August 3, 2009 at 2:00 p.m.**

Location: Lincoln County EOC
Lincoln County Court House (basement)
#1 Court Square
Lincolnton, NC 28092-2739

Cabarrus County:

Staff Assistance Visit will take place off-scenario, **Tuesday, August 4, at 3:00 p.m.**

Location: Cabarrus County Emergency Management Office

Suite FM 601
30 Corban Avenue, SE
Concord, NC 28025

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, Mecklenburg, Catawba, Gaston, Iredell, Lincoln and Counties

- No distribution of actual or simulated KI will be accomplished during the exercise.

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, Mecklenburg, Catawba, Gaston, Iredell, and Lincoln Counties

- Radiation Protection 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.

- Back-up dose assessment will be demonstrated by Radiation Protection.

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 (SERT Leader, Radiation Protection, DHHS), Mecklenburg Catawba, Gaston, Iredell, and Lincoln Counties

- Radiation Protection and DHHS will analyze technical data and make recommendations to SERT Leader who in turn will make recommendations to the EPZ County's EM Coordinator.

- Weather data will be pre-determined in order to demonstrate OROs capability to adapt to changes requiring protective actions.

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: Mecklenburg, Catawba, Gaston, Iredell and Lincoln Counties

- Counties will discuss procedures with the federal evaluator, and demonstrate the use of a special populations list.

- Transportation resources necessary to evacuate special needs populations will be identified and calls will be simulated.

- Distribution of KI to institutionalized individuals, who cannot be evacuated, will be via "discussion only" with the federal evaluator.

3. PROTECTIVE ACTION IMPLEMENTATION

3.a – Implementation of Emergency Worker Exposure Control:

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

EXTENT OF PLAY:

Participants: NC State Highway Patrol, Mecklenburg Catawba, Gaston, Iredell, and Lincoln 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 is maintained. (NUREG-0654, E.7., J.10. e, f.)

EXTENT OF PLAY:

Participants: NC SERT, Mecklenburg, Gaston, Iredell, Lincoln and Catawba Counties

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

- No distribution of actual or simulated KI will be accomplished during the exercise.

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: Mecklenburg, Catawba, Gaston, Iredell and Lincoln Counties

- A current list of special needs populations will be provided to the federal evaluator.

- Evacuation/relocation requirements will be demonstrated via discussion at the EOCs, based on the scenario and county implementation procedures.

- Contact via telephone with special population groups for PADs and transportation resources will be simulated.

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: Mecklenburg, Iredell and Lincoln Counties

- Schools & School agencies will be via discussion only with administrators, school principals, and school bus drivers at the below designated locations.

- Counties will demonstrate the protective action decision making process for schools during the actual exercise. A communication coordinating call may be made to the school (no action required by the school).

Mecklenburg County Schools for evaluation include:

Davidson Elementary, Cornelius Elementary, Huntersville Elementary, and Barnette Elementary

Location: Charlotte-Mecklenburg Emergency Management Office
228 East 9th Street

Charlotte, NC 28202-2530

Date & Time: Off-Scenario, **Tuesday, August 4, 2009, 8:30 a.m. – 2:30 p.m.**

EM Staff, Evaluator, Char-Meck Schools Safety Coordinator, and Transportation Coordinator will meet at EM office and travel to school sites. Charlotte-Mecklenburg EM will provide transportation to all schools.

Iredell County Schools for evaluation include:

Brawley Middle School

Location: Iredell County EOC
Hall of Justice Annex (Lower Level)
201 East Water Street
Statesville, NC 28677

Date & Time: Off-Scenario, **August 4, 2009 at 11:00 a.m.**

Lincoln County Schools for evaluation include:

Rock Springs Elementary
East Lincoln Middle School

Location: Lincoln County EOC
Lincoln County Court House (basement)
#1 Court Square
Lincolnton, NC 28092-2739

Date & Time: Off-Scenario, **Monday, August 3, 2009 at 2:00 p.m.**

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:

Participants: NC State Highway Patrol, Mecklenburg, Catawba, Gaston, Iredell, Lincoln, and Cabarrus Counties

- Traffic control points will be discussed with the federal evaluator by law enforcement personnel, who will discuss proper procedures, equipment and turn back values.

- When State is in direction & control the SERT Leader will determine appropriate access control measures to restrict access to contaminated areas.

Location: McGuire NS Office Complex (MOC)

Date & Time: Wednesday, August 5, 2009 from 10:30 – 11:15 a.m.
(following Lake Norman Alert & Notification Training)

Mecklenburg County Representatives available for interview include:
Charlotte/Mecklenburg Police Department, NC Highway Patrol, Huntersville Police Department

Catawba County Representatives available for interview include:
Catawba County Sheriff Department, Maiden Police Department, and NC State Highway Patrol

Gaston County Representatives available for interview include:
Gaston County Emergency Management, Gaston Sheriff's Office, Gaston Police Department, Mount Holley Police Department, Stanley Police Department

Iredell County Representatives available for interview include:
Iredell County Sheriff's Department, NC State Highway Patrol

Lincoln County Representatives available for interview include:
Lincoln County Emergency Management, Lincoln County Sheriff's Department, Lincolnton Police Department, NC State Highway Patrol

Cabarrus County EOC representatives available for interview include:
Kannapolis Police Department, Cabarrus County Sheriff Department

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

EXTENT OF PLAY:

Participants: NC SERT, Mecklenburg, Catawba, Gaston, Iredell, Lincoln and Cabarrus Counties

- The EM Coordinator or appropriate EOC staff will describe what resources are available to remove impediments from thoroughfares.

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:** NC Radiation Protection
- Radiation Protection will demonstrate this criterion using ***two*** field survey teams.
- Date and Time: On-scenario, August 18, 2009
- ***Training Only***

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:** NC Radiation Protection
- Radiation Protection will demonstrate this criterion using ***two*** field survey teams.
- Date & Time: On-scenario, August 18, 2009
- ***Training Only***

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:** NC Radiation Protection
- **Date & Time:** On Scenario, August 18, 2009
- ***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 as a minimum:
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, E1, 4, 5, 6, 7)

EXTENT OF PLAY:

- **Participants**: NC SERT, Mecklenburg Catawba, Gaston, Iredell, and Lincoln Counties

- North Carolina's counties will be in Direction and Control following county request at Site Area Emergency. Following the sounding of the sirens (simulated) and the first PAD recommendations to the public, Counties will request the state to take direction & control.

- Mecklenburg County as the "Lead County" will coordinate and conduct the countdown for silent and simulated siren activations.

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

EXTENT OF PLAY:

- **Participants:** NC SERT, Lake Norman Warning, Mecklenburg, Catawba, Gaston, Iredell and Lincoln Counties

- A Silent Test of the sirens will be conducted at Site Area Emergency and a simulated sounding will be demonstrated at General Emergency. Backup route alerting procedures for any failed siren will be discussed by the appropriate response agency in the County EOC during the exercise.

- If a siren is deemed to have failed, back-up alerting will be discussed with the federal evaluator for a pre-determined zone (siren failure feedback sheet or simulated).

- Lake Warning will be accomplished at the Environmental Center Boat Ramp (**Off-scenario, *Wednesday, August 5, 2009).*** One boat will be available to take a federal evaluator out on the lake if requested.

- Physical demonstrations will be conducted out-of-sequence, but counties will also be available to discuss their procedures during the regular exercise.

Lake Norman Warning Training, *(Not Evaluated*)

North Carolina Wildlife Commission
Charlotte/Mecklenburg Police Department
Lincoln County Sheriff
Catawba County Sheriff
Iredell County Sheriff

Location: McGuire Office Center (MOC)
McGuire Nuclear Station, Huntersville, NC

Date and Time: Off-scenario, **Wednesday August 5, 2009 from 9:30 – 10:30 a.m.**

Lake Norman Warning (Drill)

North Carolina Wildlife Commission
Charlotte/Mecklenburg Police Department
Lincoln County Sheriff
Catawba County Sheriff
Iredell County Sheriff

Location: Environmental Center Boat Ramp
McGuire Nuclear Station, Huntersville, NC

Date and Time: Off-scenario, **Wednesday, August 5, 2009 starting at 1:00 p.m.**

Backup Alert and Notification (Backup route alerting procedures for any failed siren will be discussed by the appropriate response agency in the County EOC during the exercise.)

Gaston County:

Gaston County Fire Marshal, Alexis VFD, Stanley VFD, East Gaston VFD

Location: Gaston Co EOC
615 North Highland Avenue
Gastonia, NC 28052

Date and Time: On-scenario, **Tuesday, August 18, 2009 at 11:00 a.m.**

Catawba County:

Catawba County Fire/Rescue Manager

Location: Catawba EOC
911 Blvd
Newton, NC 28658

Date and Time: On-scenario, **Tuesday, August 18, 2009**

Iredell County:

Iredell County Fire Marshals Office

Location: Iredell County EOC
201 East Water Street
Statesville, NC 28677-5200

Date and Time: On-scenario, **Tuesday, August 18, 2009**

Lincoln County:

Lincoln County Sheriff's Office

Location: Lincoln County EOC
#1 Court Square
Lincolnton, NC 28092

Date and Time: On-scenario, **Tuesday, August 18, 2009**

Mecklenburg County:

Mecklenburg County Fire Marshal

Location: Mecklenburg EOC (Charlotte Police & Fire Academy)
1770 Shopton Road
Charlotte, NC 28217

Date and Time: On-scenario, **Tuesday, August 18, 2009**

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, Mecklenburg, Catawba, Gaston, Iredell and Lincoln Counties

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

- PIOs or designated staff will receive rumor control calls at the JIC once it is activated. Approximately six calls per hour will be made to the JIC, until objectives are met.

- 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 facility/ORO has adequate procedures and resources to implement radiological monitoring and decontamination of evacuees and emergency workers, while minimizing contamination of the facility, and registration of evacuees at reception centers. (NUREG-0654, K.5.b.)

EXTENT OF PLAY:

Participants: Mecklenburg, Catawba, Gaston, Iredell, Lincoln and Cabarrus Counties

- Operation of one portal monitor will be demonstrated at each reception center.

- Six evacuees will be monitored; **two** evacuees (1 male and 1 female) will be found to be contaminated

- Evacuee decontamination procedures will be via discussion and walk through of facilities (No actual or simulated decontamination of evacuees will be accomplished)

- Two emergency workers will be monitored.

- Emergency Worker decontamination procedures will be via discussion and walk through of facilities (No actual decontamination of workers will be accomplished).

Mecklenburg County:

Mecklenburg County Evacuee registration, monitoring and decontamination demonstrated in 2005. WILL NOT BE DEMONSTRATED - (Will demonstrate in support of 2008 Catawba NS Evaluation)

Catawba County:

Catawba EM, Red Cross and Maiden Fire Dept. will demonstrate Evacuee registration, monitoring and decontamination**.**

Location: Maiden Middle School (Old Maiden High School)
518 North C Avenue
Maiden, NC 28650

Date & Time: Off Scenario, **Thursday, August 6, 2009 at 6:00 p.m.**

Emergency Worker Monitoring & Decontamination will NOT BE DEMONSTRATED. Criterion was previously demonstrated at Sherrills Ford-Terrell FD in 2005.

Gaston County:

Gaston County WILL NOT demonstrate evacuee registration, monitoring and decontamination during this evaluation cycle.

Emergency Worker Monitoring & Decontamination will be demonstrated by Lowell Fire Department.:

Location: Lowell Fire Department
202 Groves Street
Lowell, NC 28098

Date & Time: Off Scenario, **Tuesday, August 4, 2009 at 7:00 p.m.**

Iredell County:

Iredell Co EM, R&M Decon Team, Red Cross, and Mooresville FD will demonstrate Evacuee registration, monitoring & decontamination.

Location: South Iredell High School
299 Old Mountain Rd
Statesville, NC

Date & Time: Off-scenario, **Thursday, August 6, 2009 at 5:00 p.m.**

Iredell Co EM, R&M Decon Team, and Shepherd VFD will demonstrate Emergency Worker registration, monitoring and decontamination.

Location: North Bound I-77 Rest Area – Mile Marker 39

Date & Time: Off-scenario, **Thursday, August 6, 2009 at 2:00 p.m.**

Lincoln County:

Lincoln County EM, Social Services, American Red Cross, Howard's Creek Volunteer FD will demonstrate Evacuee registration, monitoring and decontamination.

Location: West Lincoln High School
172 Shoal Road
Lincolnton, NC 28092

Date & Time: Off-scenario, **Thursday, August 6, 2009 at 7:30 p.m.**

Emergency Worker Monitoring & Decontamination will **NOT BE DEMONSTRATED.** Criterion was **previously demonstrated** at North 321 VFD in 2005.

Cabarrus County (Host County):

Cabarrus County EM, Cabarrus Health Alliance, and Department of Social Services, American Red Cross and Kannapolis Fire Department will demonstrate Evacuee registration, monitoring and decontamination.

Location: Northwest Cabarrus Middle School
5140 Northwest Cabarrus Drive
Concord, NC 28027

Date & Time: Off Scenario, **Tuesday, August 4, 2009 at 6:00 p.m.**

Emergency Worker Monitoring & Decontamination: As a Host County, Cabarrus County does not have emergency workers assigned within the 10-mile EPZ.

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:** Mecklenburg and Iredell Counties

- Two vehicles will be monitored and decontaminated using water at the following times and locations (dependant upon weather conditions):

Mecklenburg County:

Charlotte Fire Department, Station #***27*** will demonstrate.

Location: Charlotte Fire Station #27
111 Ken Hoffman Rd.
Charlotte, N.C. 28215

Date & Time: Off-scenario, **Thursday, August 6, 2009 at 10:00 a.m.**

Iredell County:

Iredell Co EM, Iredell Co R&M Decon Team, and Shepherd VFD will demonstrate at:

Location: **North Bound I-77 Rest Area- Mile Marker 39**

Date & Time: Off-scenario, **Thursday, August 6, 2009 at 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**: Catawba, Gaston, Iredell, Lincoln and Cabarrus Counties.
- Six individuals per site will be registered.

Mecklenburg County:

Mecklenburg County Evacuee registration, monitoring and decontamination demonstrated in 2005. WILL NOT BE DEMONSTRATED - (Will demonstrate in support of 2008 Catawba NS Evaluation)

Cabarrus County:

Cabarrus County EM, American Red Cross, Department of Social Services, Cabarrus Health Alliance, and Kannapolis Fire Department will demonstrate.

Location: Northwest Cabarrus Middle School
5140 Northwest Cabarrus Drive
Concord, NC 28027

Date & Time: Off-scenario, **Tuesday, August 4, 2009 at 6:00 p.m.**

Catawba County:

Catawba County EM, American Red Cross, Maiden Fire Department will demonstrate.

Location: Maiden Middle School (Old Maiden High School)
518 North C Avenue
Maiden, NC 28650

Date & Time: Off-scenario, **Thursday, August 6, 2009 at 6:00 p.m.**

Gaston County:

Gaston County **WILL NOT** demonstrate. It was previously demonstrated in 2007.

Iredell County:

Iredell County EM, Red Cross, Troutman Fire & Rescue, Iredell Co. R&M Decon Team will demonstrate.

Location: South Iredell High School
299 Old Mountain Road
Statesville, NC 28677-2065

Date & Time: Off-scenario, **Thursday, August 6, 2009 at 5:00 p.m.**

Lincoln County:

Lincoln County Emergency Management, American Red Cross & Dept. of Social Services, Howard's Creek Vol. Fire Department will demonstrate.

Location: West Lincoln High School
172 Shoal Road
Lincolnton, NC 28092

Date & Time: Off-scenario, **Thursday, August 6, 2009 at 7:30 p.m.**

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**: Charlotte-Mecklenburg Emergency Management, Mecklenburg County EMS (MEDIC), and Carolinas Medical Center- University Hospital.

- MS-1 Scenario and EOP provided under separate cover to FEMA.

Location: Accident Site- Emergency Medical Services (EMS) Support:
MEDIC Dispatch Center
4525 Statesville Road
Charlotte, North Carolina 28269

Hospital Support:
CMC- University
8800 North Tryon St.
Charlotte, North Carolina 28262

Date & Time: Off-scenario, **Friday, August 7, 2009 at 7:00 a.m.**

APPENDIX 4

EXERCISE SCENARIO

This appendix contains a summary of the simulated sequence of events used as the basis for invoking emergency response actions in the McGuire Nuclear Station exercise on August 18, 2009.

This exercise scenario was prepared by Duke Energy and approved by the State of North Carolina and DHS/FEMA Region IV.

McGuire Nuclear Site
Biennial Exercise Scenario
August 18, 2009

Narrative Summary

This exercise will be a full station exercise with the Simulator Control Room, Technical Support Center (TSC), Operations Support Center (OSC), and the Emergency Operations Facility (EOF) staffed with players, controllers, and evaluators. The Joint Information Center (JIC) and the Media Center will be staffed. The State of North Carolina and the counties of Gaston, Mecklenburg, Lincoln, Cabarrus, Catawba, and Iredell are participating in this exercise. One of the site assigned Nuclear Regulatory Commission (NRC) Residents is assumed to fully participate. The offsite NRC participation will involve NRC Headquarters response staff.

A Public Spokesperson will provide stand-up press conferences at the onsite Media Center. A Public Spokesperson will provide stand-up press conferences at the Media Center in the O.J. Miller auditorium in Charlotte.

The exercise begins with the plant operating at full power on both units. The plant conditions are as follows:

- The Standby Shutdown Facility (SSF) diesel generator (D/G) in operation as part of a normally scheduled surveillance test.
- The 1A ND Pump is tagged out for motor bearing replacement.
- Unit 1 has a slightly elevated nuclear coolant system (NCS) activity due to a suspected slight fuel pin leak. NCS activity is within technical specification allowable limits.

When conditions for site assembly are met, this onsite Protective Action will be demonstrated. When conditions for a site evacuation are met, this onsite protective action will be simulated.

The State and Counties have directed when they need each classification to occur, thus the following plant casualties are used to accomplish their objectives:

Note: the crew may also opt to assess plant damage prior to event classification declaration.

An ALERT is declared due to Initiating Condition (IC) 4.6.A.1 (Fire or explosion affecting the operability of plant safety systems required to establish or maintain safe shutdown). This occurs when a fire develops in the SSF D/G fuel oil lines. The extent of damage renders the SSF D/G inoperable and causes damage to the SSF D/G.

Due to the required 2 hour length of time to remain in the Alert, approximately 1 hour after the event declaration a failure of the 1B condensate feed (CF) pump will occur, causing an automatic runback to 50% power. This will not require an upgrade in classification, but additional information should be provided to the off site agencies via a follow up message.

Approximately two hours after the initial event, due to accelerated flow corrosion and weathering, "A" main steam line develops a crack that quickly propagates to a break in the steam line. When

the main steam isolation valve (MSIV) for "A" steam generator (S/G) begins to close it sticks 50% open.

A SITE AREA EMERGENCY (SAE) is declared due to IC 4.4.S.1 (Failure of reactor protective system instrumentation to complete or initiate an automatic reactor trip once a protective system set point has been exceeded and manual trip was not successful).

At this point actual (10 mile emergency planning zone (EPZ)) sirens will not be sounded, nor will the emergency alert system (EAS) be activated. The counties will perform a silent siren test, providing input of actual siren status. Any further activation will be simulated.

At about 4 hours after the initial event an S/G tube rupture occurs on "A" S/G. This results in a release of radioactivity due to the broken steam line. This release path provides a traceable plume in the environment for the exercise. The Dose Assessment Team should report dose resulting from release of radioactivity that exceeds 5 roentgen equivalent in man (rem) committed effective dose equivalent (CEDE) adult thyroid. The TSC Emergency Coordinator (EC) or the EOF Director (EOFD) declares a GENERAL EMERGENCY (GE) based on emergency action level (EAL) 4.3.G.1 (Boundary dose resulting from an actual or imminent release of radioactivity that exceeds 1,000 millirem (mrem) total effective dose equivalent (TEDE) or 500 mrem committed dose equivalent (CDE) adult thyroid for the actual or projected duration of the release).

At this point Siren and EAS activation will be simulated upon the GE. The emergency response organization (ERO) will provide a minimum evacuation recommendation of a two mile radius and five miles downwind.

Expected Protective Action Recommendation (PAR):

Evacuate the 2 mile radius and five miles downwind:
Zones A, B, C, L, M, N
Shelter in place the remainder of the emergency planning zones:
Zones D, E, F, G, H, I, J, K, O, P, Q, R, S
Thyroid dose will be greater than 5 rem, potassium iodide (KI) use by the general public must be recommended.

After the GE is declared and about 5 hours into the scenario a wind shift will occur to 210 degrees. This will change the PAR as follows.

Evacuate the 2 mile radius and 5 miles downwind:
Zones A, B, C, D, L, M, N
Shelter in place the remainder of the emergency planning zones:
Zones E, F, G, H, I, J, K, O, P, Q, R, S
Thyroid dose will be greater than 5 rem, KI use by the general public must be recommended.

Time:	Event:
0800	The exercise begins with the plant operating at full power.
0810	A fire in the SSF D/G Room occurs.
0815	Operator reports that fire is active and damage has occurred to the fuel oil lines for the SSF D/G.
0830	Operations Shift Manager (OSM)/Emergency Coordinator (EC) declares an ALERT based on emergency action level (EAL) 4.6.A.1 (Fire or explosion affecting the operability of plant safety systems required to establish or maintain safe shutdown). Site Assembly will demonstrate accountability for all onsite personnel.
0845	State and Counties notified of Alert via Emergency Notification Form (ENF) using Selective Signaling System. NRC notification follows immediately but no later than one hour after ALERT declaration.
0915	TSC and OSC Activated.
0920	Unit 1 runback to 50% occurs.
0930	EOF is operational.
1000	Due to accelerated flow corrosion and weathering “A” main steam line develops a crack that quickly propagates to a break in the steam line. When the MSIV for “A” steam generator begins to close it sticks to 50% open. An anticipated transient without scram (ATWS) occurs.
1015	TSC EC or EOFD declares SAE based on EAL 4.4.S.1 (Failure of reactor protective system instrumentation to complete or initiate an automatic reactor trip once a reactor protection system set point has been exceeded and manual trip was not successful).
1030	State and counties notified of SAE via ENF using Selective Signaling System.
1050	1A Auxiliary Feedwater pump trips due to over current.
1200	S/G tube rupture occurs on “A” S/G. This results in a release of radioactivity due to the broken steam line.

1215 Radiation Protection runs dose assessment with steam generator tube rupture (SGTR) values. The dose assessment team should report the dose resulting from release of radioactivity that exceeds 5 rem CEDE adult thyroid. The TSC EC or EOFD declares a GE based on EAL 4.3.G.1 (Boundary dose resulting from an actual or imminent release of radioactivity that exceeds 1,000 mrem TEDE or 5,000 mrem CDE adult thyroid for the actual or projected duration of the release).

1230 The EC/EOFD declares a GE based on EAL 4.3.G.1.

Expected PAR:

Evacuate the 2 mile radius and five miles downwind:
Zones A, B, C, L, M, N
Shelter in place the remainder of the emergency planning zones:
Zones D, E, F, G, H, I, J, K, O, P, Q, R, S
Thyroid dose will be greater than 5 rem, KI use by the general public must be recommended.

1245 State and Counties notified of GE via ENF using Selective Signaling System. PAR is communicated.

1300 Wind shift to 210 degrees at 8-10 miles per hour (mph).

Second PAR:

Evacuate the 2 mile radius and 5 miles downwind:
Zones A, B, C, D, L, M, N
Shelter in place the remainder of the emergency planning zones:
Zones E, F, G, H, I, J, K, O, P, Q, R, S
Thyroid dose will be greater than 5 rem, KI use by the General Public must be recommended.

1400 This exercise will be terminated when all required objectives have been demonstrated.

APPENDIX 5

MEDICAL SERVICE DRILL

McGuire Nuclear Station

Medical Drill

August 7, 2009

Charlotte-Mecklenburg County and Carolinas Medical Center- University

Participating agencies at or supporting the MS-1 Drill were as follows:

- Charlotte-Mecklenburg Emergency Management
- Mecklenburg County Emergency Medical Services (MEDIC)
- Carolinas Medical Center - University

The McGuire Nuclear Station Medical Services (MS-1) Drill began on August 7, 2009 at the MEDIC Dispatch Center on Statesville Road in Charlotte, N.C. Per the scenario, a small lab explosion resulted in Cesium (Cs)-137 contamination with the victim receiving cuts, abrasions, and first degree burns to his arms. Having fallen back into a lab table, he was knocked unconscious for a short period of time, and sustained bruising to his mid-section.

The drill began at 0730 hours when the controller simulated a 911 dispatch describing the type of injuries and Cs-137 contamination. Two MEDIC personnel responded, with a MEDIC supervisor to assist. The responders dressed in coveralls, double plastic booties, head covers, face shields, surgical masks, and exam gloves. All three individuals arrived with 0-20R direct reading dosimeters (DRDs) and simulated permanent record dosimeters (PRDs). The PRDs were worn inside the coveralls and the DRDs were worn on the outside of the coveralls. All dosimeters had been zeroed using a CD-V750 charger. For contamination measurements, they used a Ludlum Model 2241-2 survey meter with a cellophane wrapped pancake probe. This instrument was source checked with a Cs-137 source and fell within the accepted source ranges. Instrument/DRD information is given in the table below.

Instrument/DRD	Serial Number	Calibration due date
Arrowtech 730 DRD	087694	04/21/2010
Arrowtech 730 DRD	087740	04/21/2010
Arrowtech 730 DRD	087683	04/21/2010
Ludlum Model 2241-2	207701	06/26/2010

After donning an extra set of gloves, two MEDIC personnel responded to the victim by first placing a blanket on the floor beside him. They began making initial assessments of his condition by asking him where he was hurt and observing obvious simulated injuries. They rolled him to one side, placed the blanket underneath, changed gloves, rolled him to other side, pulled the blanket underneath, and changed gloves again. The supervisor, outside the simulated lab door, asked for dosimetry readings and recorded them on the Personal Exposure Record. While one MEDIC cut the victim's clothing away, the other began a whole body frisk. Frisking methods were at the proper rate and distance to obtain meaningful results. The following results in counts per minute (CPM) were received per controller inject:

- 5000 CPM on the head
- 3000 CPM on the neck, chest, and stomach
- 5000 CPM on the left and right forearm

- 1000 CPM on the pelvis and both legs
- 5000 CPM on both feet

The MEDIC responders placed gauze on the victim's burns and lacerations. Then they changed gloves and rolled the victim on his side to frisk his back and changed gloves again. Contamination levels on his back and legs were 1000 CPM per controller inject. At 0800 hours, the MEDIC supervisor called the hospital to notify them that the crew was on the scene of a contaminated injury involving 1000-5000 CPM of Cs-137. He transmitted the injury status and estimated arrival time of the MEDIC unit. During this call, the responders rolled the victim's clothing into a sheet, changed gloves, and checked their dosimeters. They rolled the victim on a backboard and tightly tucked sheets around his entire body, enclosing any contamination. They changed gloves and strapped the victim securely onto the board then changed gloves again. They lifted him onto a gurney and transported the victim into the MEDIC unit at 0810 hours. They changed gloves and again checked their dosimeters. Before stepping into the ambulance, they removed their outer booties. During transport, they called the hospital with the patient status. They arrived at the hospital at 0835 hours. They were met by the hospital staff, when they transferred the victim, along with their survey results on the Personnel Decontamination Chart. The Radiation Safety Officer (RSO) simulated smearing and frisking the ambulance and assisted the MEDIC responders with proper removal of protective clothing and dosimetry. All dosimetry results were recorded and the dosimetry was placed in Ziplock bag. The MEDIC responders were frisked by the RSO and released with the MEDIC unit.

MEDIC personnel maintained contamination control with frequent glove changes and careful blanket wrapping of the victim. Exposure control was managed by frequent checks of the DRDs, approximately every 15 minutes. MEDIC responders stated radiation exposure limits of 1R for call back and 5 R for turn back. Frisking techniques were effective to detect contamination. Medical attention took priority over contamination concerns.

At 0805, the MEDIC ambulance notified the Carolinas Medical Center – University (CMC-U) emergency room that they were bringing a male patient who was injured and contaminated with radioactive material. Information on the patient included vital signs, contamination levels, extent of injuries, estimated time of arrival, and brief description of accident including that the patient had been working with Cs-137. The MEDIC estimated time of arrival was 30 – 45 minutes (they also called again at 0829 with an update on the patients' condition). Information about the patient's status from the ambulance crew was documented on the On-line Prehospital Medical Report. The Charge Nurse (CN) was immediately notified. She notified the Radiological Supervisor, Security, on call doctor, and response nurses. Using the University Hospital Emergency Department Radiation Control Zone (RCA) Team Leader Responsibilities procedure, the emergency room response personnel started preparations for receiving the patient and establishing a Radiological Emergency Area (REA). The procedure, set up in a checklist style, described the REA setup and was used by the CN to ensure all items were being addressed. All areas from the ambulance location into the treatment room were covered with brown rolled paper (three wide) for contamination control and a step off pad (used by the ambulance crew to undress, monitor, and exit area). The REA was taped off and posted with radiation warning signs. Hospital security and the Radiological Safety Officer were available to secure the area and control access. A shower facility, with tiled floor and walls and a drain was used for patient treatment/decontamination (the room was designated as the Decontamination Room (DR)). This room was connected to the emergency room. Hot and cold zones were established using a step off pad. A yellow barrel with a plastic bag was set up for potentially contaminated waste to be

collected. "Reminder" checklists were taped to the wall of the treatment room to aid the staff in areas such as exposure and contamination control, patient treatment, exiting the REA.

While the REA was being setup, other nurses and the doctor were getting dosimetry and donning protective clothing. The protective clothing included: paper coveralls, head cover, booties, cloth gloves, and two pair of latex gloves. Each member that would be involved with treatment of the patient was issued a permanent record dosimetry (PRD) and an electronic dosimeter (ED). The ED served the same function as a direct reading dosimeter. The EDs range was capable of providing exposure information to the staff that was within the limits of the Call In and Turn Back values. Dosimetry issue, both PRD and ED, was documented on the Exposure Record Chart. This record was also used to record ED accumulated exposure. During the exercise the hospital staff followed there process of exposure control. This involved an assigned nurse to remind everyone that it was time to read their ED, he would then record it on Dosimeter Readings log. This was done every 15 minutes. All exposures were zero. When interviewed about hospital staff exposure limits they correctly knew that the Call In value was 1R. However, they stated that they stated that the Turn Back value was 25 R. They referenced the University Hospital Emergency Department Radiation Control Zone (RCA) Team Leader Responsibilities procedure which also indicated that 25R was the Turn Back value (see recommendation).

Emergency equipment and supplies were stored in the treatment and others areas near the near the treatment room. Medical supplies in the emergency room were abundant and readily available. Items available for handling a radioactively contaminated individual included:

Item	Comment
One Ludlum 2241 (S/N 217371) with pancake probe	Calibrated 12/08, due 12/09
Landauer LUXEL+ PRD	Issue date 7/1/2009
MGP DMC 2000X electronic dosimeters	Calibration due date 11/19/200 (calibrated by Duke Energy)
Two Ludlum 2241-2 with pancake probes S/N 206126 and S/N 207797	Both calibrated 5/26/09, 5/26/10
55 gallon drum with plastic bag	In Decontamination Room (DR)
Six spare Ludlum meters	
Disposable stretcher overlay	Contamination control item
Check lists (worker aids)	Posted on wall of DR
Ziplock bags	N/A
Bio-hazard bags	Various sizes
Extra D cell batteries	N/A
Set of procedures and checklist	N/A
Protective clothing kits	Tyvek suits, paper hood, booties
Decontamination supplies	Soap, shampoo, shaving cream, razor, tide, yellow corn meal, 3% hydrogen peroxide, tape, surgical scrub, sterile gauze pads
Small plastic bags	N/A
Radiation plastic tape	N/A
Traffic cones	N/A
Sanitary wipes	N/A
Brown rolled paper	N/A
Surgical and cloth gloves	N/A

Absorbent pad	Various sizes, to be used to control water used in the decontamination process
Sponges	N/A
Step Off Pads	N/A
Landauer LUXEL +, PRDs	N/A

Using a checklist, the Ludlum hand held meters used during the exercise were verified to be operational prior to use. These checks included installing batteries, connecting the cable, place audio on, place switch on ratemeter setting and CPM, and a source response check. The source check verified that the meter responded between the predetermined values listed on a sticker on the side of the meter.

The MEDIC ambulance arrived at the hospital at 0837 and pulled on to the prepared patient transferred area, which was covered with rolled brown paper. The patient was removed from the ambulance and the ambulance crew relayed the medical and radiological condition of the patient to the hospital staff. The hospital staff, including the doctor, immediately checked on the patient medial status. The patient had abrasions and bruises on his head, hands, abdomen and forearm. The patient was rolled into the DR along the brown paper pathway. Once in the room the door leading to the outside was closed. The doctor questioned the patient on "what happened", any pain, medical history, any medications being taken, and any allergies. While the doctor was doing this the nurses were obtaining vital signs and relaying the information to the doctor. The patient was checked for external injuries which involved rolling the patient on his side. At this time a nurse performed a contamination survey on back side of the patient. Once the patient was returned to lying on his back the monitoring continued. While monitoring was being done the remaining staff continued medical treatment. The monitoring nurse not only informed the other staff in the DR of the results of the radiological monitoring, but also relayed the information to a nurse outside the DR. This nurse documented the monitoring results on the Personnel Contamination Chart form. This form was used to document the results of the decontamination process. Controller injects during the monitoring indicated that the patient was contaminated between 1000 to 5000 CPM on head, hands, abdomen and forearms. The hospital staff personnel correctly stated that the criterion for being considered contaminated was 300 CPM or greater. Medical information was being documented on the Emergency Department Flowsheet form. Once the patient was medically stabilized, the staff started their decontamination efforts. The outer clothing had already been removed by MEDIC. The areas contaminated were wiped with a sterile gauze pad moistened with saline. Absorbent pads were placed around the areas to be decontaminated to collect any water spillage. The gauze wipes were wiped in one direction one time and then disposed of in a contaminated waste container (good technique). After each decontamination attempt the monitoring nurse would re-monitor the patient and inform the doctor. Multiple decontamination efforts were necessary to reduce the contamination below 300 CPM. This process continued until the controller indicated that all contamination had been removed. During this process the doctor and other nurses continued to monitor the medical condition of the patient. It was clear throughout the entire process that the medical condition of the patient was the number one priority of the entire medical team. One nurse also collected bioassay and other samples for later analysis. This included nasal swabs and saving the first decontamination wipe of the areas of the body that were contaminated. They were double bagged out of the REA using good techniques that would control cross contamination concerns. These samples would be counted later using gamma spectroscopy counters according to the Radiation Safety Officer. The staff was observed frequently changing gloves to reduce the chance of spreading any contamination. They also collected and disposed of waste in a receptacle with a plastic bag. The

nurse performing monitoring used good techniques including: probe covered with saran wrap, probe speed and distance, audio on, and correct meter settings.

Once the patient was determined to no longer be contaminated, he was moved to a regular treatment room. To remove the patient from the potentially contaminated area, DR, a pair of booties was placed on his feet and he was asked to stand and move to the demarcation between contaminated and non-contaminated areas. Here he asked to remove his booties one at time and step onto a step off pad. He was then monitored on his entire body which included checking his feet as he stepped out of the potentially contaminated area. The survey indicated he was free of contamination. The patient was then transferred by support nurses to a non-contaminated treatment area for further medical treatment.

Once the patient was removed from the area, the medical team members demonstrated the removal and disposal of their protective clothing, with assistance from the Charge Nurse. She used a checklist and instructed the staff on proper protective clothing removal. Once the protective clothing was removed, each person was monitored by the Radiation Safety Officer at the edge of the contaminated / non contaminated boundary. All dosimetry was collected as the team members exited the potentially contaminated area. The treatment/decontamination area would be monitored and decontaminated if necessary prior to releasing back to the hospital for future use. Potentially contaminated material would be bagged, radiation levels taken and documented and then transported to a locked facility until disposable could be arranged.

Overall, the Emergency Room team personnel conducted their responsibilities professionally and competently, and demonstrated their ability to care for a contaminated and injured patient. All actions performed in the MS-1 Drill were in accordance with appropriate plans and procedures.

APPENDIX 6

RECOMMENDATIONS

RECOMMENDATIONS FOR IMPROVEMENT:

State of North Carolina, Dose Assessment:

- Incident stay times for field teams were given on an Incident Stay-Time Table which lists time to receive dose for various exposure rates and limits. This table gives dose limits in both units of rem and R. Once the exposure rate is multiplied by the stay time and the dose correction factor, the dose limits should all be listed in units of rem.

- The total field team dose was recorded in the Field Team Coordinator logbook, since there was no entry area on the Radio Log to record this value. If this value were listed on a form, it would be less vulnerable to be overlooked.

- The 10-mile EPZ map displayed inner and outer degree rings for direction of the plume. Listing both degrees together led to an initial error in placing the teams from the wind direction degree to the plume area.

State of North Carolina, State Emergency Operations Center:

- Include the State PIO in the Decision Room Team with a telephone headset for an event long open communication line to the JIC PIO. The SERT Assistant PIO should also be on the line.

- Have the State PIO at SERT develop all news releases and acquire approval instead of JIC development and sending releases back to the SERT PIO for approval and/or change.

- News Releases: add an Approving Authority and Time Stamp block to the top of news releases. This will verify exactly at what point authorization was provided to release public information. The SOP should reflect this change if made.

- Ensure a procedural process exists or is created to ensure SERT partners are made aware/or given the opportunity to review news release information prior to release. There is currently no clear process of how SERT partners are involved with PIO functions. EXAMPLE: The Dept of Agriculture never saw the Livestock Advisory prior to release and posting on the WebEOC.

- The North Carolina Radiological Emergency Response Plan for Nuclear Power Facilities should be revised to include a current listing of schools in the sections for each county.

Charlotte-Mecklenburg County:

- Potassium iodide tablets could be included with the dosimetry issued to emergency workers to avoid the need to distribute them at a later time if needed. If an evacuation is in progress, the roads may be congested and distribution of KI to the field may prove to be difficult and resource intensive.

- During the emergency worker and equipment monitoring and decontamination operations at Charlotte Fire Department Station #27, during the operational check of the Ludlum Model 2241-2 hand held monitors it was observed that the check source portion of the process, as performed, would not ensure that the meter was completely operational. A meter operational checklist was available and was being reviewed during the operational check of the meters. This checklist stated that when performing the check source check, the meter should be verified to read between the values documented on a label on the meter. The label was on the meter and available. Contrary to this, when the source check was done an upscale response and alarm were the only indications that were checked. Other firefighters that were observing this indicated that they thought this was appropriate. Based on observations and discussions with the firefighters it appeared that this may be a training concern. It is recommended that the training program be reviewed to ensure that meter operational checks are correctly addressed in the training, and if not, update the training program. Also, it is recommended that all firefighters who may be involved in performing operational meter checks be retrained, including other fire station personnel.

- During protective actions for schools activities, the following recommendations were noted:

  (1) At Huntersville Elementary School, completed KI parental consent forms were not readily available. It was believed that the school nurse maintained these forms and she was not available the day of the interview. Since the nurse may not always be available other staff should be familiar with the KI process. It is recommended that appropriate Huntersville Elementary School staff receive training on the entire KI process including how to determine if a student has or has not been given permission by their parent to take KI. Consider if instructions should be included in procedures concerning this process and add if appropriate. The process of documenting which students have taken KI should be evaluated. CMS system and individual school procedures could then be updated to include instructions on what method is to be used to document which students have ingested KI when appropriate. Consider using the updated daily class rosters.

  (2) Barnette Elementary School is a new facility and it has not been referenced in the CMS "Basic Information and Operational Procedures for Schools Located Within the Planning Radius of McGuire and Catawba Nuclear Power Stations" procedure. It is recommended that this procedure be updated with the same types of information (school size, busing needs, shelter location, etc.) that is included for other schools within the CMS system.

Catawba County:

- Clarify the meaning and more accurately define the EOC Activation Levels, and incorporate the practice of formally declaring when the EOC is operational. The practice should include a verbal and written/posted declaration that the EOC is operational.

Gaston County:

- Prior to establishing TCPs on county line roads, Gaston, Lincoln and Charlotte-Mecklenburg counties should coordinate their actions preclude unnecessary duplication of effort. This duplication could potentially save up to nine man-days of effort during an actual event.

- During emergency worker and equipment monitoring and decontamination operations at the Lowell Fire Department (LFD), the driver of a vehicle was told to walk approximately 50' from his vehicle to the personnel monitoring station. At that point it was not known if he was contaminated or not. The potential to contaminate the LFD paved area in front of the fire station existed. The LFD firefighters said they would monitor the area. It is recommended that this be evaluated and that method be developed to get the vehicle driver and passengers from the vehicle to the personnel monitoring station without potentially cross contaminating other areas. It was noted that in a previous evaluated exercise at this location booties were provided to the driver, which would be one method to reduce the risk of cross contamination. Also, whatever method is developed, the procedure needs to be updated to reflect that change. Also, interior decontamination methods are not addressed in the procedure. The use of an "off the shelf" high efficiency particulate air (HEPA) vacuum needs to be evaluated. Others methods for decontaminating interior areas may be as effective or even better than vacuuming and should be investigated. If the preferred method is a HEPA vacuum, it is recommended that a commercial grade certified and inspected HEPA vacuum be used. Whatever method is used, it should be documented in the procedure.

Iredell County:

- During reception and congregate care operations at South Iredell High School, the following recommendations were noted:

  (1) Initial reception of evacuees consists of monitoring each vehicle by hand. Consider alternate methods of expediting in-processing of evacuees if this process becomes tedious with large numbers of vehicles waiting in line.

  (2) The Cs-137 source used to check the portal monitor was 0.81 *u*Ci in 1998. This source has decayed to the point that it is not consistently detectable in the center of the portal monitor and needs to be replaced with a Cs-137 1.0 *u*Ci source.

- During emergency worker and equipment monitoring and decontamination at Northbound I-77 Rest Area Mile Marker 39 operations, the following recommendations were noted:

  (1) Review the vacuum process for interior of vehicles to determine if contamination could be spread from the vacuum exhaust to the decontamination personnel. A shop vacuum is part of the equipment and it was stated that it would be used to vacuum contamination from the inside of vehicles. There is guidance on the micron size required to use a HEPA filter for radiological particles, but the filter did not state what size particle it trapped. This could result in sucking contamination out of the carpet and blowing it into the air and setting up a condition where the person trying to decontaminate the vehicle would be exposed to airborne radiation and potential inhalation.

  (2) Recommend that the "Radiation Monitoring Decontamination and Exposure Control" procedure be revised to address retention of nasal swabs for identification of radioisotopes inhaled.

  (3) Recommend procedures on protecting the probes be revised in conformance with current FEMA guidance.

Lincoln County: No recommendations noted.

Cabarrus County:

- The Cabarrus Health Alliance still passes out the 1998 guidance for taking KI. This pamphlet recommends taking KI for 10 days. The 2001 FDA guidance recommends one tablet every 24 hours, but only while exposure continues. This is a programmatic issue and should be considered by the state, county, and utility. This issue was not discussed with the Cabarrus Health Alliance.

- Check all personnel monitoring survey meters with a radiation source before use, and provide specific source check ranges to ensure that instrumentation is responding correctly. This recommendation was discussed with the Radiological Office from the Cabarrus County Emergency Management Department