

Grand Gulf Nuclear Station

Exercise – September 9, 2009

Final Report - Radiological Emergency Preparedness Program

December 9, 2009



FEMA

FEMA Region IV





FEMA

Final Exercise Report

Grand Gulf Nuclear Station

Licensee: **Entergy Operations, Inc.**

Exercise Date: **September 9, 2009**

Report Date: **December 9, 2009**

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

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TABLE OF CONTENTS

	Page
TABLE OF CONTENTS	iii
I. EXECUTIVE SUMMARY	1
II. INTRODUCTION	2
III. EXERCISE OVERVIEW	5
A. EPZ Description	5
B. Exercise Participants	5
C. Exercise Timeline	6
IV. EXERCISE EVALUATION AND RESULTS	8
A. Summary Results of Exercise Evaluation - Table 2	8
B. Status of Jurisdictions Evaluated	10
1. STATE OF MISSISSIPPI	11
1.1 State Emergency Operations Center	11
1.2 Fact Finding: Water Way Clearance (USCG Interview)	11
1.3 Emergency News Media Center	13
1.4 Emergency Operations Facility	13
1.5 Dose Assessment	14
1.6 Fixed Laboratory Operations	15
1.7 Radiological Field Monitoring Teams	15
1.8 State Traffic Control Points	16
2. RISK JURISDICTION	16
2.1 CLAIBORNE COUNTY	16
2.1.1 Emergency Operations Center	16
2.1.2 Traffic Control Points	17
2.1.3 Emergency Worker & Equip Monitoring & Decon	18
2.1.4 Protective Actions for Schools	18

3.	HOST JURISDICTIONS	19
3.1	ADAMS COUNTY	19
3.1.1	Emergency Operations Center	19
3.1.2	Reception and Congregate Care	19
3.2	COPIAH COUNTY	20
3.2.1	Emergency Operations Center	20
3.2.2	Reception and Congregate Care	20
3.2.3	Emergency Worker and Equipment Decon	21
3.3	WARREN COUNTY	21
3.3.1	Emergency Operations Center	21
3.3.2	Reception and Congregate Care	22
3.3.3	Medical Services Drill	22

List of Appendices

APPENDIX 1 - ACRONYMS AND ABBREVIATIONS.....	24
APPENDIX 2 - EXERCISE EVALUATORS	26
APPENDIX 3 - EXERCISE CRITERIA AND EXTENT-OF-PLAY AGREEMENT	28
APPENDIX 4 - EXERCISE SCENARIO	57
APPENDIX 5 - MEDICAL SERVICES DRILL	65
APPENDIX 6 - RECOMMENDATIONS	77
APPENDIX 7 - FEMA REGION VI – JOINT INFORMATION CENTER	82

List of Tables

Table 1 -	Out-Of-Sequence Activity Schedule	3
Table 2 -	Exercise Timeline	7
Table 3 -	Summary of Exercise Evaluation	9

I. EXECUTIVE SUMMARY

On September 9, 2009, the Department of Homeland Security/Federal Emergency Management Agency (FEMA), Regions IV and VI, conducted a full participation plume exercise in the emergency-planning zone (EPZ) around the Grand Gulf Nuclear Station (GGNS). Region VI issues a separate report on the evaluation of the State of Louisiana and Tensas Parish. Region VI has provided the Joint Information Center exercise portion for inclusion into the Region IV exercise report. 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 (RERP) and procedures.

The most recent exercise at this site was conducted on September 19, 2007. The qualifying emergency preparedness exercise was conducted November 4-5, 1981 at GGNS.

FEMA Region IV wishes to acknowledge the efforts of the many people who developed and participated in this successful exercise from the State of Mississippi and Claiborne, Adams, Copiah and Warren Counties. Protecting the public health and safety is the full-time job of some of the exercise participants and an assigned responsibility for others. Others have willingly sought this responsibility by volunteering to provide vital emergency services to their communities. The cooperation and teamwork of all participants demonstrated the quality of training and preparation.

This report contains the evaluation of the exercise on September 9, 2009, as well as out-of-sequence activities conducted on July 14, 2009; the week of August 11-12, 2009; and the week of September 8-9, 2009, which included: medical services (MS-1) drill, traffic control demonstration, protective action for schools interview, reception center demonstrations, shelter demonstrations, emergency worker and decontamination demonstrations, laboratory operation demonstration, a back-up route alerting demonstration and the distribution of potassium iodide (KI) to the public.

State and local organizations demonstrated the ability to implement their emergency response plans and procedures. No Deficiencies or Areas Requiring Corrective Action (ARCA) were identified with Mississippi participants. The correction of an ARCA identified during the October 2006 MS-1 drill for "Improper monitoring techniques and contamination control procedures" (ARCA #28-06-6.d.1-A-02) was successfully demonstrated.

II. INTRODUCTION

On December 7, 1979, the President directed FEMA to assume the lead responsibility for all offsite nuclear planning and response. FEMA's activities are conducted pursuant to 44 Code of Federal Regulations (CFR) Parts 350, 351 and 352. These regulations are a key element in the Radiological Emergency Preparedness (REP) Program that was established following the Three Mile Island Nuclear Station accident in March 1979.

44 CFR 350 establishes the policies and procedures for FEMA'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 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 by the Nuclear Regulatory Commission (NRC) 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 the Interior
 - Department of Transportation
 - Environmental Protection Agency
 - Food and Drug Administration and
 - Nuclear Regulatory Commission

Representatives of these agencies serve on the FEMA Region IV Regional Assistance Committee (RAC), which is chaired by FEMA.

Formal submission of the RERPs for the GGNS to FEMA Region IV by the State of Mississippi was made on May 22, 1981. Formal approval of these RERPs was granted on June 29, 1983, under Title 44 CFR 350.

On September 9, 2009, the State of Mississippi and affected local governments conducted a full participation, plume pathway exercise. The State of Louisiana and Tensas Parish also participated. FEMA Regions IV and VI 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 GGNS. The purpose of this report is to present, in a results based format, the exercise results and findings on the performance of the offsite response organizations (ORO) during a simulated radiological emergency.

Out-Of-Sequence Activities were conducted at the below listed locations on the dates specified:

Table 1. Out-Of-Sequence Activity Schedule

DATE	LOCATION	ACTIVITY
14-Jul-09	Warren	MS-1 Drill, City of Vicksburg Fire Department and River Region Medical Center
11-Aug-09	Adams	Demonstration of Emergency Worker & Equipment Monitoring & Decontamination/Shelter Facility
12-Aug-09	Warren	Demonstration of Emergency Worker & Equipment Monitoring & Decontamination/Shelter Facility/Reception Center
12-Aug-09	MSDH/DRH	Laboratory Operations Demonstration
8-Sep-09	MEMA/SEOC	TCP GE 6 Interview on location, (Ramola Rd. and Highway 18)
8-Sep-09	Claiborne	Demonstration of Emergency Worker & Equipment Decontamination at Pattison Fire Department
8-Sep-09	Copiah	Demonstration of Emergency Worker & Equipment Monitoring & Decontamination/Shelter Facility/Reception Center
9-Sep-09	Claiborne	Backup Route Alerting Demonstration
9-Sep-09	Claiborne	Protective Actions for Schools; Bus Driver & Principle Interviews

The findings presented are based on the assessments of the Federal evaluator team, with final determinations being made by Regional Assistance Committee (RAC) Chairperson and Lead Evaluator and approved by the Regional Director.

The criteria utilized in the FEMA 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-REP "Interim REP Program 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 and ingestion pathway EPZs, 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 criterion at each jurisdiction or functional entity evaluated in a results only format. This section also contains the status of ARCAs assessed during previous exercises.

III. EXERCISE OVERVIEW

This section contains data and basic information about the September 9, 2009 exercise testing the offsite emergency response capabilities in the area surrounding the GGNS, in the State of Mississippi.

A. EPZ Description

The GGNS, owned and operated by Entergy Operations Inc, is located near the City of Port Gibson in Claiborne County, Mississippi. Portions of Claiborne County, Mississippi and Tensas Parish, Louisiana, are located in the 10-mile emergency planning zone (EPZ). The land in the Mississippi EPZ is primarily agricultural in nature. The only major recreation area in the 10-mile EPZ is Grand Gulf State Park, located one mile east of the plant. The major transportation facilities in the EPZ include the Mississippi River, US Highway 61, and State Highways 27, 18, and 547, and the Natchez Trace Parkway. The 10-mile EPZ is divided into 11 protective action areas.

The ingestion exposure pathway EPZ that surrounds the GGNS includes all or part of the following Mississippi Counties: Warren, Hinds, Copiah, Adams, Amite, Wilkinson, Franklin, Jefferson, Lincoln, Simpson, Rankin, Madison, Yazoo, Sharkey, and Issaquena. Also included in the ingestion exposure pathway EPZ are the following Louisiana Parishes: Concordia, Franklin, Madison, and East Carroll. The majority of the land use within the ingestion pathway EPZ is agriculture and/or recreational.

B. Exercise Participants

The following agencies, organizations, and units of government participated in the GGNS exercise on September 9, 2009.

STATE OF MISSISSIPPI

- Board of Animal Health
- Department of Agriculture and Commerce
- Department of Education
- Department of Environmental Quality
- Department of Health/Division of Radiological Health
- Emergency Medical Services
- Department of Mental Health
- Department of Public Safety/Mississippi Highway Patrol
- Department of Transportation
- Department of Wildlife, Fisheries and Parks
- Development Authority/Energy Division
- Emergency Management Agency
- Extension Service

Forestry Commission
Military Department/National Guard
Mississippi State University

RISK JURISDICTION

Claiborne County

HOST JURISDICTIONS

Adams County
Copiah County
Hinds County
Warren County

PRIVATE/VOLUNTEER ORGANIZATIONS

American Nuclear Insurers
American Red Cross
Salvation Army

FEDERAL GOVERNMENT

Department of Agriculture
Department of Energy
Department of Health and Human Services,
Centers for Disease Control
Department of Homeland Security,
Federal Emergency Management Agency
Environmental Protection Agency
Food and Drug Administration
Nuclear Regulatory Commission
United States Coast Guard

C. Exercise Timeline

Table 1, on the following page, presents the time at which key events and activities occurred during the GGNS exercise on September 9, 2009.

Table 2. Exercise Timeline

DATE AND SITE: September 9, 2009 - Grand Gulf Nuclear Station

Emergency Classification Level or Event	Time Utility Declared	Time That Notification Was Received or Action Was Taken						
		SEOC	ENMC	DOSE	CLAIBORNE COUNTY	ADAMS COUNTY	COPIAH COUNTY	WARREN COUNTY
Unusual Event	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alert	0855	0912	0925	0855	0909	0927	0928	0930
Site Area Emergency	1001	1013	1005	1029	1015	1027	1029	1026
General Emergency	1113	1123	1116	1118	1125	1136	1139	1137
Simulated Rad. Release Started	1122	1146	1125	1122	1122	1026	1257	1026
Simulated Rad. Release Terminated	1355	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing
Facility Declared Operational	0938	1027	1000	1027	0950	1027	1130	1103
Exercise Terminated	1410	1419	1406	1406	1415	1208	1427	1348
Declaration of State of Emergency Local					1015		1135	1103
State		1039	1043	1039				
Early Precautionary Actions: Evacuated Schools and Special Populations; Established a Reception and Congregate Care Center		1030	1045	1145	1021	1047	1131	
1st Protective Action Decision: Evacuated 1, 2a and 7; Sheltered in Place all others		1131		1129	1131			1156
1st Siren Activation		1145	1145	1145	1145			
1st EAS Message		155	155	1155				
KI Administration: KI for Emergency Workers – Voluntary Ingestion		1309	1309	1309	1309			

IV. EXERCISE EVALUATION AND RESULTS

This section contains the results and findings of the evaluation of all Mississippi jurisdictions and functional entities that participated in the September 9, 2009, exercise testing the offsite emergency response capabilities of State and local governments within the 50-mile EPZ around the GGNS.

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

A. Summary Results of Exercise Evaluation - Table 2

The matrix in Table 2 shows the results of the criteria evaluated during this exercise, organized by jurisdictions and functional entity. 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 3. Summary of Exercise Evaluation

DATE AND SITE: September 9, 2009 – Grand Gulf Nuclear Station

ELEMENT/Sub-Element	SEOC	ENMC	EOF	MDRH DOSE	MDRH FIX LAB	MDRH FMT	CLAIBORNE COUNTY	ADAMS COUNTY	COPIAH COUNTY	WARREN COUNTY
1. EMERGENCY OPERATIONS MANAGEMENT										
1.a.1. Mobilization	M	M	M			M	M	M	M	M
1.b.1. Facilities										
1.c.1. Direction and Control	M		M	M			M	M	M	M
1.d.1. Communications Equipment	M	M	M	M		M	M	M	M	M
1.e.1. Equipment & Supplies to Support Operations	M	M	M	M	M	M	M	M	M	M
2. PROTECTIVE ACTION DECISION MAKING										
2.a.1. Emergency Worker Exposure Control	M		M	M			M			
2.b.1. Rad Assessment and PARs Based on Available Info			M	M						
2.b.2. Rad Assessment and PADs for the General Public	M		M	M			M			
2.c.1. Protective Action Decisions for Special Populations							M			
2.d.1. Rad Assessment & Decision Making for Ingestion Exposure										
2.e.1. Rad Assessment & 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	M	M
3.b.1. Implementation of KI Decisions	M		M			M				
3.c.1. Implementation of PADs for Special Populations										
3.c.2. Implementation of PADs for Schools							M			
3.d.1. Implementation of Traffic and Access Control	M						M			
3.d.2. Impediments to Evacuation and Traffic and Access Control	M						M			
3.e.1. Implementation of Ingestion Decisions Using Adequate Info										
3.e.2. Implementation of IP Decisions Showing Strategies & Instructional Materials										
3.f.1. Implementation of Relocation, Re-entry and Return Decisions										
4. FIELD MEASUREMENT and ANALYSIS										
4.a.1. Plume Phase Field Measurement & Analysis Equipment						M				
4.a.2. Plume Phase Field Measurement & Analysis Management				M		M				
4.a.3. Plume Phase Field Measurements & Analysis Procedures						M				
4.b.1. Post Plume Field Measurement & Analysis										
4.b.2. Laboratory Operations					M					
5. EMERGENCY NOTIFICATION & PUBLIC INFO										
5.a.1. Activation of Prompt Alert and Notification	M						M			
5.a.2. Activation of Prompt Alert and Notification 15-Minute (Fast Breaker)										
5.a.3. Activation of Prompt Alert & Notification Backup Alert & Notification	M	M					M			
5.b.1. Emergency Info and Instructions for the Public and the Media	M						M			
6. SUPPORT OPERATIONS/FACILITIES										
6.a.1. Monitoring and Decon of Evacuees and EWs and Registration Evacuees							M	M	M	M
6.b.1. Monitoring and Decon of Emergency Worker Equipment							M		M	
6.c.1. Temporary Care of Evacuees								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 results based format.

- **Met** – Exercise criterion successfully demonstrated; No Deficiencies or ARCAs were assessed during this exercise, and no ARCAs remaining from previous exercises remain unresolved.
- **Deficiency** – Exercise criterion was demonstrated, but errors were observed. Each deficiency is described, and corrective action recommendations are included.
- **Area Requiring Corrective Actions** – Exercise criteria under which one or more ARCAs were assessed during the current exercise or ARCAs assessed during prior exercises that remain unresolved. A description of the included, as well as the recommended corrective action to be demonstrated before or during the next biennial exercise.
- **Not Demonstrated** – Listing of exercise criteria that 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 FEMA-REP-14 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 FEMA-REP-14 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 MISSISSIPPI

1.1 State Emergency Operations Center

The Mississippi Emergency Management Agency (MEMA) successfully demonstrated the full activation of the Mississippi State Emergency Operations Center (SEOC). Upon initiation of emergency email and page notifications, the MEMA staff arrived to the EOC expeditiously, followed shortly thereafter by emergency support functions (ESF). The Mississippi State Emergency Operations Center (SEOC) has two levels of direction and control. The Directors Office of Response Director has primary responsibility for the response effort as well as the primary responsibility for coordinating protective action decisions with Mississippi Emergency Management Agency (MEMA) executive directors, the Mississippi State Department of Health, Division of Radiological Health (MSDH/DRH) and the risk county Emergency Management Director. The Operations Bureau Director implements and distributes the decisions to the SEOC staff and lower level emergency functions. This dual method of direction and control works very well and reduces the task overload effect which can occur with a single director.

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

1.2 Fact Finding: Water Way Clearance (USCG Interview)

The United States Coast Guard (USCG) did not participate in the evaluated exercise; however interviews were conducted on September 9th, 2009 with the Marine Safety Detachment of the Lower Mississippi Sector, Headquartered in Memphis, Tennessee. The Marine Safety Detachment, located at 225 Coast Guard Road, Vicksburg, Mississippi was stood up at this site in 2007, has a staff of six personnel, limited equipment and no tactical communications that allows direct communication with the State or Grand Gulf Nuclear Station (GGNS). It has responsibilities that include management of approximately one thousand, one hundred river miles, that encompass the Mississippi, Ouachita and Red Rivers, and includes the authority to close rivers or waterways under their control at their discretion or direction from the Regional Headquarters.

The Detachment Supervisor and the DHS Security Port/Recovery Specialist, both assigned to this detachment, were available and provided responses to inquires regarding USCG, Mississippi and GGNS coordinated efforts. The Detachment Supervisor and DHS representative exhibited extensive knowledge of Coast Guard and River Operations as they pertained to incidents that occur and require response in their areas of responsibility. They indicated they have recently begun a relationship with the State (MEMA) and GGNS officials with intent to develop a plan that details the capabilities and limitations that they would be available to provide. Currently, they are using an ‘All Hazards’ approach to dealing with any river related incident.

Initial coordination identified there are pre-existing State and local plans that defer to the USCG as the principle authority for river clearance and closings, but do not detail responsibilities or extent of USCG involvement. There are no Memorandums of Understanding or Agreement between the State, Communities or the USCG that specify agreement and commitment. The Detachment Supervisor also indicated the method of communication for a GGNS emergency is unclear. Aside from landline, cell phone or fax there is no dedicated equipment to communicate with the State or GGNS. They explained that while the USCG controls the rivers, it will require equipment and law enforcement support and assistance from the State Fish and Wildlife and local communities to adequately cover any affected areas in response to an incident at GGNS. They further clarified that their Detachment is not equipped, trained or inclined officially or otherwise to deal directly with a Radiological incident at GGNS and would likely use a perimeter security concept to secure the area affected by an incident at GGNS.

In closing, the USCG conveyed, that knowing the availability of State and community resources to support river operations, they believe there are enough resources available to adequately conduct a river clearing or closing if necessary. Efforts have been initiated to develop a joint operations group that includes the states of Mississippi and Louisiana and local resources on either side of the river that have been well received by officials in either agency, are progressing well and will put in place a plan that supports any necessary response.

- a. **INTERVIEW CRITERIA** 1.a.1, 1.d.1, 1.e.1, 3.a.1, 3.b.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

1.3 Emergency News Media Center

The Emergency News Media Center (ENMC), located in the Entergy Operations Building, Echelon One, 1350 Echelon Parkway, Jackson, Mississippi provided a sufficient operational area for the ENMC. Public Information Officers (PIO) from Mississippi Emergency Management Agency (MEMA), Mississippi State Department of Health – Division of Radiological Health, Claiborne County Civil Defense, Entergy Operations and other staff demonstrated good coordination, cooperation and dissemination of timely and accurate media information throughout the exercise. The ENMC staff held three media briefings in a large well-equipped auditorium. The briefings provided accurate and complete information regarding the emergency at Grand Gulf Nuclear Station to the mock media in a timely manner. The public inquiry hotline number was distributed to the public early in the demonstration and staff fielded simulated inquires from the public very well. Rumors were addressed in media briefings as identified. A bank of four television sets was also utilized in the Mississippi Operations Room for constant media monitoring. (See Appendix 7 for the JIC evaluation for Louisiana).

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

1.4 Emergency Operations Facility

The Grand Gulf Emergency Operations Facility (EOF), located on-site in the station's training complex is radiologically hardened and served as an excellent facility from which all participating response organizations can effectively manage emergency operations.

Communications and coordination between the State officials deployed to the EOF and with officials representing the State of Louisiana, and the utility operator, were excellent. Additionally, the availability of technical information in the EOF was accurate and provided in a timely fashion.

The State staff deployed to the EOF effectively; performed independent accident analyses, to include radiological dose assessment; provided direction and control for the State's radiological field monitoring teams, and kept the State Emergency Operations

Center, located in Jackson, Mississippi, fully informed of all current technical developments.

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

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

1.5 Dose Assessment

The State Radiological Accident Assessment Officer/ Division of Radiological Health Director (SRAAO/DRH Director) and his staff worked closely together to obtain and manage a large amount of technical data.

When advised by the Radiological Assessment Coordinator in the Emergency Operations Facility (EOF) that the Grand Gulf Nuclear Station had issued a Protective Action Recommendation (PAR) to evacuate a two-mile radius around the plant and five-miles in the downwind direction in sectors A and B the SRAAO/DRH Director took the recommendation to the Director of the Office of Response (DOR) where sectors ABC were swiftly converted to Protective Action Areas 1, 2A and 7. The SRAAO/DRH Director and MEMA Technical Director met with the DOR in the DOR's office and contacted the Port Gibson/Claiborne County Civil Defense Director. Together, they discussed the recommendation and then made the Protective Action Decision to evacuate areas 1, 2A and 7 and shelter the remainder of the 10-mile Emergency Planning Zone (EPZ). Evacuation of the general public and special population in areas 1, 2A and 7 was reported as complete at 1245.

- a. **MET:** Criteria 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

1.6 Fixed Laboratory Operations

The Mississippi State Department of Health, Division of Radiation Health demonstrated sample receipt, processing, and analysis capabilities at the State’s fixed radiological laboratory facility. Participants followed procedures, established appropriate radiological control areas and demonstrated appropriate contamination controls during sample receipt and handling. The laboratory staff is commended on the process improvements observed in this demonstration. The time expended, dedication and positive attitude of participants resulted in a successful demonstration of the laboratory’s capabilities.

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

1.7 Radiological Field Monitoring Teams

The State of Mississippi Field Monitoring Teams (FMT) demonstrated effective use of instrumentation and equipment, and followed applicable procedures in the successful accomplishment of all tasks. Instruments and equipment were organized in secure containers, enabling team members to take ambient measurements and collect environmental samples in a timely and efficient manner. Use of the primary communication systems was demonstrated and the FMTs routinely communicated results to the Field Team Coordinator (FTC). Team members were cognizant of administrative exposure levels and potassium iodide instructions. Team members demonstrated competence and professionalism throughout the exercise.

- a. **MET:** Criteria 1.a.1, 1.d.1, 1.e.1, 3.a.1, 3.b.1, 4.a.1, 4.a.2 and 4.a.3
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE

- e. **PRIOR ARCAs – RESOLVED:** NONE
- f. **PRIOR ARCAs – UNRESOLVED:** NONE

1.8 State Traffic Control Points

At 1630 on September 8, 2009, an out-of-sequence (OOS) event was conducted at Traffic Control Point (TCP) GE 6 located at the intersection of Ramola Road and Highway 18 in Claiborne County. The Mississippi Highway Patrol (MHP) and Mississippi Department of Transportation (MDOT) participated in this event. MDOT staff delivered an equipment trailer and described the equipment and methods they would use to set up the TCP. MHP Officers discussed their responsibilities at the TCP for directing traffic, assisting citizens and responding to any impediments in traffic flow. MHP and MDOT personnel displayed adequate knowledge of dosimetry and Potassium Iodide (KI) and its uses. Both groups displayed a high degree of professionalism and a certainty that they possessed the knowledge, skills and ability to carry out all responsibilities associated with establishing and operating a TCP. Both groups were also equipped with all necessary materials needed to carry out their assignments.

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

2. RISK JURISDICTION

2.1 CLAIBORNE COUNTY

2.1.1 Emergency Operations Center

The Emergency Management Director (EMD) exhibited excellent command and control throughout the exercise. He effectively used his Operations Officer to assist him in insuring all agencies were being proactive and in tracking mission assignments to verify their status. Key County personnel (President of the Board of Supervisors, Port Gibson Mayor, County Sheriff, Port Gibson Police Chief) were present throughout the exercise and took an active part in making protective action decisions (PAD) and in coordinating inter agency activities and double checking to insure the EMD was following the plans to protect the population. The EMD conducted frequent briefings and utilized the

experience of the members of the EOC staff to complete all activities to insure the safety of the public.

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

2.1.2 Traffic Control Points

Claiborne County Backup Route Alerting was conducted by interview and demonstrated in-person with two Claiborne County Sheriff's Deputies and the Claiborne County Emergency Management Operations Manager on September 9, 2009. During the interview, the CCEM Operations Manager explained that routes for Backup Route Alerting would be determined in the EOC based on siren failure location(s). Deputies would then be instructed by radio of which routes to perform the back-up alerting. Deputies were provided with the necessary equipment and instructions, including a pre-scripted message for use to conduct the alerting. The Deputies were well aware of the procedures for Route Alerting in the event of primary siren failure, as well as the proper use of dosimetry and Potassium Iodine.

- a. **MET:** Criteria 1.e.1, 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

2.1.3 Emergency Worker & Equipment Monitoring & Decontamination

An Emergency Worker Monitoring and Decontamination Center (EWMD) for Claiborne County was established at the Pattison Fire Department located at 10047 Highway SR-547, in Pattison, MS, in an out of sequence activity on September 07, 2009. The Claiborne County Fire Department supported the monitoring and decontamination function at this location. Fire personnel set up the EWMD in accordance with their plans and procedures, including locations for vehicles to enter the monitoring area, for monitoring to be conducted, and for clean and quarantine vehicle parking lots. The facility provided sufficient space to conduct monitoring and decontamination operations. Fire participants were familiar with exposure control limits, contamination control limits and monitoring techniques, and decontamination methods. Staffing was adequate to provide radiation monitoring and decontamination services for expected Claiborne County emergency worker equipment and personnel. All participants were familiar with their roles and conducted their duties with professionalism, competence, and dedication.

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

2.1.4 Protective Actions for Schools

Personnel representing Claiborne County Schools, including School Principals, the Transportation Coordinator and Bus Drivers participated in interviews regarding their roles in supporting an emergency evacuation of schools within the 10-mile Emergency Planning Zone (EPZ). During an emergency at the Grand Gulf Nuclear Station (GGNS), protective actions for the schools in the EPZ are issued by the Superintendent based on guidance from Emergency Operations Center (EOC) policy staff including guidance from; the Utility, State and County Emergency Management, and State Radiological Health Officer. At Site Area Emergency (SAE), schools prepare to evacuate and busses are paged to return to the bus barn for evacuation instructions, where they are provided with dosimetry equipment and evacuation maps. Loaded evacuating busses travel in police escorted convoy to a relocation shelter at Hazlehurst High School in Copiah County. American Red Cross (ARC) staffs and registers each arriving student at the shelter. Parents are notified of the evacuation via Emergency Alert System (EAS) messages and local media.

- a. **MET:** Criterion 3.c.2

- b. **DEFICIENCY:** NONE
- c. **ARCA:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ARCAs - RESOLVED:** NONE
- f. **PRIOR ARCAs - UNRESOLVED:** NONE

3. HOST JURISDICTIONS

3.1 ADAMS COUNTY

3.1.1 Emergency Operations Center

Adams County demonstrated the ability to its host county responsibilities during an Emergency Operations Center (EOC) activation and subsequent interagency coordination. All agencies were represented by knowledgeable and competent professionals who energetically discussed how to improve their capabilities. The risk county should be comforted in the knowledge that Adams County is prepared to receive, monitor, decontaminate and care for its citizens in the event of an evacuation.

- a. **MET:** Criteria 1.a.1, 1.c.1, 1.d.1 and 1.e.1
- b. **DEFICIENCY:** NONE
- c. **ARCA:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ARCAs - RESOLVED:** NONE
- f. **PRIOR ARCAs - UNRESOLVED:** NONE

3.1.2 Reception and Congregate Care

Adams County successfully demonstrated its procedures to receive, monitor, decontaminate, register and shelter evacuees during an out-of-sequence (OOS) drill at the Natchez High School. City, County and volunteer organizations melded well as a team focused on safeguarding evacuees from the risk County. All participants demonstrated a strong desire to refine their individual and collective skills and were open to recommendations to improve their capabilities.

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

- b. **DEFICIENCY:** NONE
- c. **ARCA:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ARCAs - RESOLVED:** NONE
- f. **PRIOR ARCAs - UNRESOLVED:** NONE

3.2 COPIAH COUNTY

3.2.1 Emergency Operations Center

The Copeiah County EOC successfully demonstrated command and control of emergency operations. The EOC is appropriately equipped to support shelter and evacuation operations. Mobilization of support staff was conducted with no prior notice of their participation in the exercise. They responded promptly and were familiar with their plans and procedures to support evacuees.

- 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

3.2.2 Reception and Congregate Care

The ability to monitor, register and care for evacuees at the Hazlehurst Middle School Gymnasium in Hazlehurst, Mississippi was successfully demonstrated in Copeiah County. The Sheriff’s Department the Mississippi Game and Fish Department and Hazlehurst Police Department provided facility security, Copeiah County Emergency Services and the Hazlehurst Volunteer Fire Department conducted monitoring and decontamination of evacuees, and the Central Mississippi Chapter of the American Red Cross (ARC) registered evacuees and managed the temporary care of evacuees. All personnel were professional and knowledgeable in their duties and responsibilities.

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

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

3.2.3 Emergency Worker and Equipment Decontamination

The Copiah County demonstration of the monitoring and decontamination of emergency workers was successfully conducted at Copiah County’s Hazlehurst Middle School. The facility afforded sufficient space to accomplish the monitoring, decontamination and registration of emergency workers (EW) arriving there from affected areas surrounding the Grand Gulf Nuclear Station (GGNS). This operation was staffed mainly by volunteers from the Copiah County Emergency Management Agency and local fire and law enforcement departments. The training, dedication and proficiency of the volunteers resulted in a smooth-flowing demonstration of their capabilities. The staff was very knowledgeable about dosimetry, monitoring and contamination control.

- 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**

3.3 WARREN COUNTY

3.3.1 Emergency Operations Center

The Warren County Emergency Management Director successfully demonstrated her ability to provide direction and control to the Emergency Operations Center (EOC) staff to effectively coordinate response actions in the event of a radiological emergency. The EOC was activated in accordance with the county plan, and the EOC staff reported for duty in a timely manner. The initial and subsequent briefings kept the staff informed of changes in plant conditions and their necessary actions to respond to those changes. The EOC staff was guided by both established procedures as well as their professional

experiences in dealing with previous county emergencies. The Emergency Management Director and her staff are prepared to carry out their host County responsibilities to provide Reception and Congregate Care (RCC) to evacuees from Claiborne County.

- a. **MET:** Criteria 1.a.1, 1.c.1, 1.d.1 and 1.e.1
- b. **DEFICIENCY:** NONE
- c. **ARCA:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ARCAs - RESOLVED:** NONE
- f. **PRIOR ARCAs - UNRESOLVED:** NONE

3.3.2 Reception and Congregate Care

Evacuee reception and congregate care was satisfactorily demonstrated in Warren County during an out-of- sequence (OOS) evaluation on August 12, 2009. Under the tutelage of the County Emergency Management Agency and the Department of Human Services, volunteers and fulltime County staff banded together to establish a well laid out site that facilitated the flow of evacuees through monitoring, decontamination and registration. Similarly, the Vicksburg Area Chapter, American Red Cross (ARC) discussed how it would shelter an estimated 1320 evacuees.

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

3.3.3 Medical Services Drill

Vicksburg Fire Department and River Region Medical Center satisfactorily demonstrated their ability to respond to and treat contaminated injured individuals during an out of sequence Medical Services (MS-1) drill conducted on July 14, 2009. This demonstration resolves the 2006 Area Requiring Corrective Action (ARCA) - 28-06-6.d.1-A-02 Condition: Improper monitoring techniques and contamination control procedures.

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

Issue No.: ARCA #28-06-6.d.1-A-02

Description: The Ludlum model 14 C radiation survey instruments were not within current calibration; and, the direct reading dosimeters used by ambulance personnel did not have evidence of a current annual leak test.

Corrective Action Demonstrated: The radiological equipment was operationally checked at 0830, prior to the start of the drill. The two Ludlum Survey Model 14C survey meters were checked for response to a radioactive source. The radioactive check source for both Ludlum Model 14 C survey meters was attached to meter with serial number 64678. Dosimeters were checked, zeroed and information recorded on a Personal Radiation Exposure Card for each individual. A 0-20 R and a 200 mR dosimeter were prepared for each individual using a CDV 750 Charger. Evaluators had access to the annual leak test documentation for the dosimeters.

- 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
ACP	Access Control Point
CDC	Centers for Disease Control
CFR	Code of Federal Regulations
DHHS	Department of Health and Human Services
DHS	Department of Homeland Security
DPIO	Deputy Public Information Officer
DRH	Division of Radiological Health
EAS	Emergency Alert System
ECL	Emergency Classification Level
EIC	Emergency Information Center
EMA	Emergency Management Agency
EMS	Emergency Medical Service
ENMC	Emergency News Media Center
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPA	Environmental Protection Agency
EPZ	Emergency Planning Zone
FDA	Food and Drug Administration
FEMA	Federal Emergency Management Agency
FMT	Field Monitoring Team
FR	Federal Register
FRERP	Federal Radiological Emergency Response Plan
GE	General Emergency
GGNS	Grand Gulf Nuclear Station
KI	Potassium Iodide
M-DOT	Mississippi Department of Transportation
MEMA	Mississippi Emergency Management Agency
MREPP	Mississippi Radiological Emergency Preparedness Plan
NRC	Nuclear Regulatory Commission

NUREG-0654	NUREG-0654/FEMA-REP-1, Rev. 1, <i>"Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, November 1980"</i>
ORO	Offsite Response Organization
PAA	Protective Action Area
PAD	Protective Action Decision
PAR	Protective Action Recommendation
PG/CCCD	Port Gibson/Claiborne County Civil Defense
PIO	Public Information Officer
RAC	Regional Assistance Committee
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
SAE	Site Area Emergency
SEOC	State Emergency Operations Center
TCP	Traffic Control Point
USDA	U.S. Department of Agriculture

APPENDIX 2

EXERCISE EVALUATORS

The following is a list of the personnel who evaluated the GGNS exercise on September 9, 2009. The organization represented by each evaluator is indicated below.

FEMA - Federal Emergency Management Agency
ICF - ICF Consulting, Incorporated
NRC - Nuclear Regulatory Commission

Conrad S. Burnside

RAC Chairman

Kevin R. Keyes

Northern Section Chief

<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
Lead Evaluator	Gerald McLemore	FEMA
STATE OF MISSISSIPPI – Director: Mr. Thomas Michael Womack		
State Emergency Operations Center	Gerald McLemore	FEMA
	JT Ackerman	FEMA
	Dan Prevo	ICF
	Ron Shaw	FEMA OJT
Emergency News Center	Roy Smith	ICF
	Rosemary Samsel	ICF
Dose Assessment	Marynette Herndon	ICF
	Jon Fox	ICF
Radiological Health-Fixed Lab	Marcy Campbell	ICF
Radiological Field Monitoring Team #1	Ron Biernacki	ICF
Radiological Field Monitoring Team #2	John Zeidler	ICF
Emergency Operations Facility	Bob Trojanowski	NRC
State Traffic Control Points (Claiborne County)	Dan Prevo	ICF
	Lisa Rink	FEMA OJT
Waterway Warning Interview	Odis Spencer	FEMA
	Lisa Rink	FEMA OJT

CLAIBORNE COUNTY

Emergency Operations Center	Joe Harworth Carl Wentzell Robert Nash	FEMA ICF FEMA OJT
Protective Actions for Schools	Stephen Watts	ICF
Traffic Control Points	Stephen Watts	ICF

ADAMS COUNTY

Emergency Operations Center	Bill Larrabee Lorenzo Lewis	ICF FEMA OJT
Reception, Congregate Care	Bill Larrabee Carl Wentzell Lisa Rink Alex Sera	ICF ICF FEMA OJT FEMA OJT

COPIAH COUNTY

Emergency Operations Center	Matthew Bradley Bob Spence	FEMA FEMA OJT
EW & Monitoring, Decontamination	Jon Fox Ron Biernacki Lorenzo Lewis	ICF ICF FEMA OJT
Reception, Congregate Care	Jon Fox Ron Biernacki	ICF ICF

WARREN COUNTY

Emergency Operations Center	Michael Dolder Alex Sera John Fill	FEMA FEMA OJT FEMA OJT
Reception & Congregate Care	Bill Larrabee Carl Wentzell Lisa Rink Alex Sera	ICF ICF FEMA OJT FEMA OJT
Medical Services Drill	Gerald McLemore Marcy Campbell Robert Nash	FEMA ICF FEMA OJT

APPENDIX 3

EXERCISE CRITERIA AND EXTENT-OF-PLAY AGREEMENT

This appendix contains the exercise criteria scheduled for demonstration in the Grand Gulf Nuclear Station exercise on September 9, 2009, the extent-of-play agreement approved by FEMA Region IV.

A. Exercise Criteria

The specific radiological emergency preparedness criteria, which were to be demonstrated, have been consolidated with the extent-of-play for this event and are explained in subsection B below.

B. Extent-of-Play Agreement

The Extent-of-Play agreement on the following pages was submitted by the State of Mississippi, and was approved by FEMA Region IV.

GGNS Evaluated Exercise 2009

Extent of Play

Revision 4

06/04/2009

A full participation exercise will be conducted during the week of September 9, 2009 for the purpose of demonstrating an integrated radiological emergency response capability for the Grand Gulf Nuclear Station (GGNS). The exercise will be a one-day event, encompassing response capabilities and requirements of the State, and local governments in the Emergency Planning Zone (EPZ).

The State of Mississippi and Entergy have prepared goals addressing respective obligations. Both reflect the necessary interactions between the State and local governments as well as the utility as set forth in the Mississippi Radiological Emergency Preparedness Plan (MREPP) for GGNS. The six evaluation areas coupled with specific criteria to accomplish the following goals have been written in accordance with the Federal Emergency Management Agency (FEMA) Federal Register Notice, "Radiological Emergency Preparedness: Interim REP Guidance 2002."

STATE AND LOCAL GOVERNMENT EXERCISE GOALS:

State and local government goals for this exercise are:

1. Test as well as evaluate the Mississippi Radiological Emergency Preparedness Plan (MREPP) for GGNS concurrently with local government implementing procedures.
2. Demonstrate and assess the continued viability of the integrated radiological emergency response effort through state and local government offsite personnel implementing response actions in accordance with established guidance.
3. Ensure the safety of the general public through the issuance of protective action recommendations, as appropriate.
4. Demonstrate operational control of Field Monitoring Teams and their sampling capabilities.
5. Validate the Mississippi State Department of Health/Division of Radiological Health (MSDH/DRH) laboratory plans and procedures.

GENERAL EXTENT-OF-PLAY (EOP):

1. Exercise exemptions: Hinds County is exempt from 2009 GGNS FSE.
2. The United States Coast Guard (USCG) exercise participation will be limited to an interview.

The interview will be conducted between the USCG Vicksburg point of contact and a FEMA evaluator as a fact finding mission. The information gathered from the USCG interview will be compiled by FEMA and presented to the Mississippi Emergency Management Agency (MEMA) for review and comments prior to inclusion into the 2009 Grand Gulf Nuclear Station Full Scale Exercise Final Report. All USCG references listed within this Extent-Of-Play will be strictly conducted through interview.

3. With regard to last minute additions or changes to any previously approved Extent-of-Play, all suggested changes must be forwarded to the RAC Chair for approval.
4. The goal of all offsite response organizations (ORO) is to protect the health and safety of the public. This goal is achieved through the execution of appropriate plans and procedures. It is recognized that situations may arise that could limit the organizations in the exact execution of these plans and procedures.
5. In the event of an unanticipated situation, OROs are permitted to exercise flexibility in the implementation of their plans and procedures in order to successfully achieve the objective of protection of public health and safety and protection of the environment.
6. As a statement of fact, no ORO will deliberately deviate from its plans and procedures with the intent of avoiding responsibility.
7. Correction-on-the-spot will be considered at these locations at the discretion of and concurrence between the FEMA Evaluator and the MEMA Controller. Caution should be exercised to insure exercise play is not interrupted. Correction-on-the-spot at County EOC's are limited to areas outside the EOC operations area (i.e., emergency worker briefings and issue of dosimetry in other rooms).

References:

As indicated in the Extent-of-Play Agreement, the State of Mississippi requests the option to correct issues immediately as defined in FEMA Policy Paper, Strategic Review Steering Committee, Initiative 1.5, correct Issues Immediately, effective March 31, 2000, signed by Kay C. Goss, CEM, Associate Director for Preparedness, Training and Exercises. Acceptable locations/activities for on the spot correction are clearly indicated in the extent of play portion under each criterion.

EVALUATION AREA 1: EMERGENCY OPERATIONS MANAGEMENT

Sub-element 1.a – Mobilization

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

Locations

MS SEOC (MEMA), MS State Department of Health/Div. of Radiological Health (MSDH/DRH), Dose Assessment (DA), GGNS Emergency Operations Facility (GGNS site/EOF), Emergency News Media Center/Joint Information Center (ENMC/JIC), Mississippi Department of Transportation (MDOT), Claiborne County EOC/AEOC, Adams County, Copiah County, Warren County and US Coast Guard (USCG).

Extent of Play

- **MEMA:** Full participation from the SEOC which will include calling in all coordinating state agencies and performing from a “cold start” (i.e. no prepositioning of personnel).
- **MSDH/DRH:** Will demonstrate laboratory facilities/ procedures during the week of August 10 – 14, 2009. Will also stand up in sequence to demonstrate staff knowledge and procedures. Will demonstrate criterion 1.e.1, 3.a.1 and 4.c.1 for laboratory facilities/ procedures during FSE on 9 September 2009.
- **MDOT ESF 1:** Will be interviewed within SEOC in accordance with MDOT plans and procedures for requesting federal resources.
- **GGNS Emergency Operations Facility:** Will be staffed and mobilized in sequence.
- **The ENMC/JIC:** Will be staffed and mobilized in sequence.
- **All local EOCs:** Will also stand up in sequence to demonstrate staff knowledge and procedures. Local response personnel will not be prepositioned, however, the MSDH/DRH Field Monitoring team(s) will pre-stage at the Claiborne County EOC in Port Gibson, MS.
- **USCG:** Interview of capabilities and procedures for conducting River clearance operations.

Responsible OROs should demonstrate the capability to receive notification of an emergency situation from the licensee, verify the notification, and contact, alert, and mobilize key emergency personnel in a timely manner.

Responsible OROs should demonstrate the activation of facilities for immediate use by mobilized personnel when they arrive to begin emergency operations. Activation of facilities should be completed in accordance with the plan and/or procedures.

ARCAs None

EVALUATION AREA 1: EMERGENCY OPERATIONS MANAGEMENT

Sub-element 1.c - Direction and Control

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

Locations

MS SEOC (MEMA), MS State Department of Health/Div. of Radiological Health (MSDH/DRH), Dose Assessment (DA), GGNS Emergency Operations Facility (GGNS site/EOF), Claiborne County EOC/AEOC, Adams County, Copiah County, and Warren County.

Extent of Play

- **MEMA:** Full Participation
- **MSDH/DRH:** Full Participation including demonstration from the GGNS EOF.
- **GGNS Site/EOF:** Full Participation
- **All local EOCs:** Full participation

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

ARCAs None

EVALUATION AREA 1: EMERGENCY OPERATIONS MANAGEMENT

Sub-element 1.d – Communications Equipment

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

Locations

MS SEOC (MEMA), MS State Department of Health/Div. of Radiological Health (MSDH/DRH), Field Monitoring Teams (FMT), Dose Assessment (DA), GGNS Emergency Operations Facility (GGNS site/EOF), Emergency News Media Center/Joint Information Center (ENMC/JIC), Claiborne County EOC/AEOC, Adams County, Copiah County, Warren County and USCG.

Extent of Play

- **MEMA:** Will demonstrate communications capabilities with the utilities and with all supporting agencies from the state and local levels. The OHL will be utilized to communicate between utility, Risk County, MEMA, and key supporting agencies. WebEOC will be utilized as a backup communications and resource management tool. Other communications channels will include high/low band communications, commercial phone lines and cellular and satellite phone lines.

- **MSDH/DRH:** Will demonstrate communications capabilities between Field Monitoring Team(s), utility, and SEOC upon return from sampling locations.
- **GGNS Emergency Operations Facility:** The OHL will be utilized to communicate between Risk County, MEMA, and key supporting agencies.
- **ENMC/JIC:** Will demonstrate communications capabilities with SEOC and supporting agencies.
- **Claiborne County EOC/AEOC:** Will demonstrate communications capabilities with SEOC including use of the OHL, supporting county agencies, and the utility.
- **Warren County:** Will demonstrate communications capabilities with SEOC and supporting county agencies (including City of Vicksburg agencies/organizations)
- **Adams County:** Will demonstrate communications capabilities with SEOC and supporting county agencies.
- **Copiah County:** Will demonstrate communications capabilities with SEOC and supporting county agencies.
- **USCG:** Interview of capabilities and procedures for conducting River clearance operations.

OROs will demonstrate that a primary and at least one backup system are fully functional at the beginning of an exercise. If a communications system or systems are not functional, but exercise performance is not affected, no exercise issue will be assessed. Communications equipment and procedures for facilities and field units should be used as needed for the transmission and receipt of exercise messages. All facilities and field teams should have the capability to access at least one communication system that is independent of the commercial telephone system. Responsible OROs should demonstrate the capability to manage the communication systems and ensure that all message traffic is handled without delays that might disrupt the conduct of emergency operations. OROs should ensure that a coordinated communication link for fixed and mobile medical support facilities exists. The specific communications capabilities of OROs should be commensurate with that specified in the response plan and/or procedures. Exercise scenarios could require the failure of a communications system and the use of an alternate system, as negotiated in the extent of play agreement.

ARCAs None

EVALUATION AREA 1: EMERGENCY OPERATIONS MANAGEMENT

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

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

Locations

MS SEOC (MEMA), MS State Department of Health/Div. of Radiological Health (MSDH/DRH), Field Monitoring Teams (FMT), Dose Assessment (DA), GGNS

Emergency Operations Facility (GGNS site/EOF), Emergency News Media Center/Joint Information Center (ENMC/JIC), Claiborne County EOC/AEOC, Adams County, Copiah County, Warren County and USCG.

Extent of Play

- **MEMA:** Is equipped with GIS mapping computers to be used to generate maps for 10 and 50-mile EPZs as well as plume direction and wind speeds. SEOC also has a stockpile of KI (stored at MSDH/DRH). MEMA also maintains an inventory of TLDs, Ludlum and CDV-700 survey meters, and self reading dosimeters.
- **MSDH/DRH:** Is equipped with Ludlum monitoring and survey equipment and electronic dosimeters. Radiological equipment will also be utilized to demonstrate laboratory functions capable of required radiological analysis to support protective action decisions.
- **Field Monitoring Teams (FMT):** Will have dosimetry/survey equipment.
- **Dose Assessment (DA):** Will have dosimetry/survey equipment.
- **GGNS Emergency Operations Facility:** Will have dosimetry/survey equipment.
- **Emergency News Media Center/Joint Information Center (ENMC/JIC):** N/A
- **Claiborne County EOC/AEOC:** Local EOC is equipped with maps for 10 and 50-mile EPZs including evacuation routes. KI will be issued from the local EOC. All city, county, and state road crews will be issued CDV-700 kits as well as dosimetry and TLDs. Ambulance service has been provided with radiological monitoring equipment.
- **Warren County:** Will have portable generators and tents brought in by trailer. Radiological monitoring equipment and dosimetry will be utilized. Containers for contaminated products will be utilized. Barricades will be utilized for directing evacuees for decontamination. Will also provide proper documentation for survey instruments and dosimeter prior to MS-1 Drill scheduled for July 14th, 2009. Out of Sequence.
- **Adams County:** Will have portable generators and tents brought in by trailer. Radiological monitoring equipment and dosimetry will be utilized. Containers for contaminated products will be utilized. Barricades will be utilized for directing evacuees for decontamination; Out of Sequence.
- **Copiah County:** Will have portable generators and tents brought in by trailer. Radiological monitoring equipment and dosimetry will be utilized. Containers for contaminated products will be utilized. Barricades will be utilized for directing evacuees for decontamination; Out of Sequence.
- **USCG:** Interview of capabilities and procedures for conducting River clearance operations.

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

All instruments, including air sampling flow meters (field teams only), should be inspected,

inventoried and operationally checked before each use. They should be calibrated in accordance with the manufacturer's recommendations (or at least annually for the unmodified CDV-700 series or if there are no manufacturer's recommendations for a specific instrument; modified CDV-700 instruments should be calibrated in accordance with the recommendation of the modification manufacturer.) A label indicating such calibration should be on each instrument or verifiable by other means. Note: Field team equipment is evaluated under 4.a.1; radiological laboratory equipment under 4.c.1; reception center and emergency worker facilities' equipment is evaluated under 6.1.1; and ambulance and medical facilities' equipment is evaluated under 6.d.1.

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

Dosimetry should be inspected for electrical leakage at least annually and replaced, if necessary. CDV-138s, due to their documented history of electrical leakage problems, should be inspected for electrical leakage at least quarterly and replaced if necessary. This leakage testing will be verified during the exercise, though documentation submitted through the Annual Letter of Certification, and/or through a staff assistance visit.

Responsible OROs should demonstrate the capability to maintain inventories of KI sufficient for use by emergency workers, as indicated on rosters; institutionalized individuals, as indicated in capacity lists for facilities; and, where stipulated by the plan and/or procedures, members of the general public (including transients) within the plume pathway EPZ.

Quantities of dosimetry and KI available and storage locations(S) will be confirmed by physical inspection at storage location(s) at storage location(s) or through documentation of current inventory submitted during the exercise, provided in the Annual Letter of Certification submission, and/or verified during a Staff Assistance Visit. Available supplies of KI should be within the expiration date indicated on KI bottles or blister packs. As an alternative, the ORO may produce a letter from FEMA indicating that the KI supply remains potent, in accordance with Food and Drug Administration (FDA) guidance. FEMA issues these letters based upon the findings of the certified laboratory that performed the analysis at the OROs request and expense.

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

ARCAs None

EVALUATION AREA 2: PROTECTIVE ACTION DECISION-MAKING

Sub-element 2.a – Emergency Worker Exposure Control

Criterion 2.a.1: OROs use a decision-making process, considering relevant factors and appropriate coordination, to 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; J.10.e, f)

Locations

MS SEOC (MEMA), MS State Department of Health/Div. of Radiological Health (MSDH/DRH), Dose Assessment (DA), and Claiborne County.

Extent of Play

- **MEMA, DA & MSDH/DRH:** Executive Director and MSDH/DRH Executive Director will demonstrate conference call with Risk County to decide whether to issue KI and whether or not to allow EWs to be exposed to levels of radiation that exceed administrative limits. Will also demonstrate by interview the process for obtaining information from FMTs to formulate PADs.
- **Claiborne County:** Demonstrate phone call between officials at the local level, MEMA Executive Director and the MSDH/DRH to make decisions regarding usage of KI, evacuations and additional radiation exposure beyond administrative limits.

Note: If the scenario does not warrant a discussion on either the authorization to administer KI or emergency worker (EW) exposure exceeding administrative limits, then the criteria shall be accomplished through an interview with the evaluator. County decision-makers receive recommendations for KI and EW exposure via conference call with the MS State Health Officer (MSDH/DRH) and SEOC.

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

Responsible OROs should demonstrate the capability to make decisions concerning the authorization of exposure levels in excess of pre-authorized levels.

As appropriate, OROs should demonstrate the capability to make decisions on the distribution and administration of KI as a protective measure, based on the ORO's plan and/or procedures or projected thyroid dose compared with the established Protective Action Guides (PAGs) for KI administration.

ARCAs None

EVALUATION AREA 2: PROTECTIVE ACTION DECISION-MAKING

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

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

Locations

Dose Assessment (DA), GGNS Emergency Operations Facility (GGNS site/EOF) and Claiborne County.

Extent of Play

- **DA & GGNS Site/EOF:** Will be demonstrated via conference call between MEMA, MSDH/DRH and risk county EOC and elected officials.
- **Claiborne County:** If licensee makes recommendation to shelter in place, due to heat, EPZ (local populace) evacuation will be simulated.

During the initial stage of the emergency response, following notification of plant conditions that may warrant offsite protective actions, the ORO should demonstrate the capability to use appropriate means, described in the plan and/or procedures, to develop protective action recommendations (PAR) for decision-makers based on available information and recommendations from the licensee and field monitoring data, if available.

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

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

ARCAs None

EVALUATION AREA 2: PROTECTIVE ACTION DECISION-MAKING

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

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

Locations

MS SEOC (MEMA), MS State Department of Health/Div. of Radiological Health (MSDH/DRH), Dose Assessment (DA), GGNS Emergency Operations Facility (GGNS site/EOF) and Claiborne County.

Extent of Play

- **MEMA & MSDH/DRH:** Will be demonstrated via conference call between MEMA, MSDH/DRH and risk county EOC and elected officials.
- **Claiborne County:** Will be demonstrated via conference call between MEMA, MSDH/DRH and risk county EOC and elected officials.

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

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

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

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

ARCAs None

EVALUATION AREA 2: PROTECTIVE ACTION DECISION-MAKING

Sub-element 2.c - Protective Action Decisions Consideration for the Protection of Special Populations

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

Locations

Claiborne County.

Extent of Play

- **Claiborne County:** Demonstrated by local EOC staff.

Usually, it is appropriate to implement evacuation in areas where doses are projected to exceed the lower end of the range of PAGs, except for situations where there is a high-risk environment or where high-risk groups (e.g., the immobile or infirm) are involved. In these cases, examples of factors that should be considered are: weather conditions, shelter availability, Evacuation Time Estimates, availability of transportation assets, risk of evacuation vs. risk from the avoided dose, and precautionary school evacuations. In situations where an institutionalized population cannot be evacuated, the administration of KI should be considered by the OROs.

ARCAs None

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

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

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

Locations

MS SEOC (MEMA), MS State Department of Health/Div. of Radiological Health (MSDH/DRH), Field Monitoring Teams (FMT), GGNS Emergency Operations Facility (GGNS site/EOF), Claiborne County EOC/AEOC, Adams County, Copiah County, Warren County and USCG.

Extent of Play

- **MSDH/DRH FMTs:** Will provide radiological protective equipment to laboratory personnel as required.
- **Field Monitoring Teams:** Teams will demonstrate checking dosimetry every 15 to 30 minutes and recording information on dose cards. Teams will demonstrate

reporting all readings to a location designated by the MEMA Controller. Teams will demonstrate turning in dosimetry to a location designated by the MEMA Controller at the end of their proposed shifts. In Sequence Activity.

- **Claiborne County EOC/AEOC:** EWs already have dosimetry and will demonstrate checking dosimetry every 15 to 30 minutes and recording information on dose cards; will demonstrate reporting all readings to the local EOC; will demonstrate turning in dosimetry to local EOC at the end of their shifts. Out of Sequence Activity.
- **Warren County:** VFD will demonstrate reading dosimetry; Out of Sequence Activity.
- **Adams County:** Volunteers will demonstrate utilizing self-reading dosimetry on scene; Out of Sequence Activity.
- **Copiah County:** Volunteers will demonstrate utilizing self-reading dosimetry on scene; Out of Sequence Activity.
- **USCG:** Interview of capabilities and procedures for conducting River clearance operations.

OROs should demonstrate the capability to provide appropriate direct-reading and permanent record dosimetry, dosimeter chargers and instructions on the use of dosimetry to emergency workers. For evaluation purposes, appropriate direct-reading dosimetry is defined as dosimetry that allows individual(s) to read the administrative reporting limits (that are pre-established at a level low enough to consider subsequent calculation of Total Effective Dose Equivalent) and maximum exposure limits (for those emergency workers involved in life saving activities) contained in the OROs plans and procedures.

Each emergency worker should have the basic knowledge of radiation exposure limits as specified in the ORO's plan and/or procedures. Procedures to monitor and record dosimeter readings and to manage radiological exposure control should be demonstrated.

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

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

monitored by dosimeters strategically placed in the work area. It should be noted that, even in these situations, each team member must still have their own permanent record dosimetry. Individuals without specific radiological response missions, such as farmers for animal care, essential utility service personnel, or other members of the public who must re-enter an evacuated area following or during the plume passage, should be limited to the lowest radiological exposure commensurate with completing their missions.

ARCAs

None

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

Sub-element 3.b. Implementation of KI Decision:

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

Locations

MS SEOC (MEMA), MS State Department of Health/Div. of Radiological Health (MSDH/DRH), Field Monitoring Teams (FMT), GGNS Emergency Operations Facility (GGNS site/EOF) and USCG.

Extent of Play

- **MEMA:** N/A
- **MSDH/DRH:** State Health Officer (SHO) will make decisions concerning the administration of KI to emergency workers, institutionalized persons and the general public. Emergency Workers receive KI in an emergency worker kit upon issue.
- **USCG:** Interview of capabilities and procedures for conducting River clearance operations.

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

advised to take it. If a recommendation is made for the general public to take KI, appropriate information should be provided to the public by the means of notification specified in the ORO's plan and/or procedures. Emergency workers should demonstrate the basic knowledge of procedures for the use of KI whether or not the scenario drives the use of KI. This can be accomplished by an interview with the evaluator.

ARCAs None

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

Sub-element 3.c. – Implementation of Protective Actions for Special Populations

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

Locations

Claiborne County

Extent of Play

- **MEMA:** N/A
- **MSDH/DRH:** N/A
- **Claiborne County:** Bus Drivers and County School Principals will interview at Claiborne County EOC during out of sequence events.

Applicable OROs should demonstrate the capability to alert and notify all public schools systems/districts of emergency conditions that are expected to or may necessitate protective actions for students. Contacts with public school systems/districts must be actual.

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

Public school systems/districts shall demonstrate the ability to implement protective action decisions for students. The demonstration shall be made as follows: At least one school in each affected school system or district, as appropriate, needs to demonstrate the implementation of protective actions. Describing to the evaluators the procedures that would be followed should simulate the implementation of canceling the school day, dismissing early, or sheltering. If evacuation is the implemented protective action, all activities to coordinate and complete the evacuation of students to reception centers, congregate care centers, or host schools may actually

be demonstrated or accomplished through an interview process. If accomplished through an interview process, appropriate school personnel including decision making officials (e.g., superintendent/principal, transportation director/bus dispatcher) and at least one bus driver (and the bus driver's escort, if applicable) should be available to demonstrate knowledge of their role(s) in the evacuation of school children.

Communications capabilities between school officials and the buses, if required by the plan and/or procedures, should be verified.

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

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

ARCAs None

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

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

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

Locations

MS SEOC (MEMA), Claiborne County.

Extent of Play

- **State of MS:** MDOT and MHP will demonstrate establishing and manning State TCP GE 12 at Natchez Trace Parkway and Grindstone Ford; Out of Sequence
- **Claiborne County:** City of Port Gibson Police Department will demonstrate setting up roadblocks and radiological monitoring. Claiborne county Sheriff's Department will demonstrate setting up roadblocks and radiological monitoring; Out of Sequence; Not evaluated.

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

Traffic and access control staff should demonstrate accurate knowledge of their roles and Responsibilities in instances where OROs lack authority necessary to control access by certain types of traffic (rail, water, and air traffic), they should demonstrate the capability to contact the State or Federal agencies with authority to control access.

ARCAs None

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

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

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

Locations

MS SEOC (MEMA), Claiborne County.

Extent of Play

- **MDOT & MHP** will demonstrate capabilities at TCPs/TAPs GE 12 located at Natchez Trace Parkway and Grindstone Ford; Out of Sequence
- **Claiborne County:** City of Port Gibson Police Department and Claiborne County Sheriff's Department will demonstrate at TCPs/TAPs; Out of Sequence; not proposed for evaluation by FEMA.

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

ARCAs None

EVALUATION AREA 4: FIELD MEASUREMENT AND ANALYSES

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

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

Locations

MS State Department of Health/Div. of Radiological Health (MSDH/DRH), GGNS Emergency Operations Facility (GGNS site/EOF), and Field Monitoring Teams (FMT)

Extent of Play

- **FMT:** Will demonstrate in coordination with GGNS site/EOF and Dose Assessment as required.

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

ARCAs None

EVALUATION AREA 4: FIELD MEASUREMENT AND ANALYSES

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

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

Locations

Field Monitoring Teams (FMT).

Extent of Play

- **FMT:** Will demonstrate in coordination with GGNS site/EOF and Dose Assessment as required.

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

Field measurements are needed to help characterize the release and to support the adequacy of implemented protective actions or to be a factor in modifying protective actions. Teams should

be directed to take measurements in such locations, at such times to provide information sufficient to characterize the plume and impacts.

If the responsibility to obtain peak measurements in the plume has been accepted by licensee field monitoring teams, with concurrence from OROs, there is no requirement for these measurements to be repeated by State and local monitoring teams. If the licensee teams do not obtain peak measurements in the plume, it is the ORO's decision as to whether peak measurements are necessary to sufficiently characterize the plume. The sharing and coordination of plume measurement information among all field teams (licensee, Federal and ORO) is essential. Coordination concerning transfer of samples, including a chain-of-custody form, to a radiological laboratory should be demonstrated. OROs should use Federal resources as identified in the Federal Radiological Emergency Plan (FRERP), and other resources (e.g., compacts, utility, etc.), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

ARCAs None

EVALUATION AREA 4: FIELD MEASUREMENT AND ANALYSES

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

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

Locations

Field Monitoring Teams (FMT).

Extent of Play

- **FMT:** Will demonstrate in coordination with GGNS site/EOF and Dose Assessment as required.

Field teams should demonstrate the capability to report measurements and field data pertaining to the measurement of airborne radioiodine and particulates and ambient radiation to the field team coordinator, dose assessment, or other appropriate authority. If samples have radioactivity significantly above background, the appropriate authority should consider the need for expedited laboratory analyses of these samples. OROs should share data in a timely manner with all appropriate OROs. The methodology, including contamination control, instrumentation, preparation of samples, and a chain-of-custody form for transfer to a laboratory will be in accordance with the ORO's plan and/or procedures.

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

ARCAs None

EVALUATION AREA 4: FIELD MEASUREMENT AND ANALYSES

Sub-element 4.c. Laboratory Operations:

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

Locations

MS State Department of Health/Div. of Radiological Health (MSDH/DRH).

Extent of Play

- **MSDH/DRH:** Will demonstrate laboratory functions capable of required radiological analysis to support protective action decisions.

The laboratory staff should demonstrate the capability to follow appropriate procedures for receiving samples, including logging of information, preventing contamination of the laboratory, preventing buildup of background radiation due to stored samples, preventing cross contamination of samples, preserving samples that may spoil (e.g., milk), and keeping track of sample identity. In addition, the laboratory staff should demonstrate the capability to prepare samples for conducting measurements.

The laboratory should be appropriately equipped to provide analyses of media, as requested, on a timely basis, of sufficient quality and sensitivity to support assessments and decisions as anticipated by the ORO's plans and procedures. The laboratory (laboratories) instrument calibrations should be traceable to standards provided by the National Institute of Standards and Technology. Laboratory methods used to analyze typical radionuclides released in a reactor incident should be as described in the plans and procedures. New or revised methods may be used to analyze atypical radionuclide releases (e.g. transuranics or as a result of a terrorist event) or if warranted by circumstances of the event. Analysis may require resources beyond those of the ORO.

The laboratory staff should be qualified in radioanalytical techniques and contamination control procedures.

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

ARCAs None

EVALUATION AREA 5: EMERGENCY NOTIFICATION & PUBLIC INFORMATION

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

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

Locations

MS SEOC (MEMA), MS State Department of Health/Div. of Radiological Health (MSDH/DRH), Emergency News Media Center/Joint Information Center (ENMC/JIC), and Claiborne County.

Extent of Play

- **MEMA (PIO):** Will demonstrate in conjunction with personnel from MSDH/DRH, utility, State of Louisiana, and Risk County PIO from ENMC/JIC (Echelon Building/Entergy Headquarters, Jackson, MS)
- **MSDH/DRH:** See above
- **Claiborne County:** See above

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

For exercise purposes, timely is defined as “the responsible ORO personnel/representatives demonstrate actions to disseminate the appropriate information/instructions with a sense of urgency and without undue delay.” If message dissemination is to be identified as not having been accomplished in a timely manner, the evaluator(s) will document a specific delay or cause as to why a message was not considered timely.

Procedures to broadcast the message should be fully demonstrated as they would in an actual emergency up to the point of transmission. Broadcast of the message(s) or test messages is not

required. The alert signal activation may be simulated. However, the procedures should be demonstrated up to the point of actual activation.

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

ARCAs None

EVALUATION AREA 5: EMERGENCY NOTIFICATION & PUBLIC INFORMATION

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

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. Back up 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)

Locations

MS SEOC (MEMA), Claiborne County and USCG.

Extent of Play

- **MEMA:** N/A
- **MSDH/DRH:** N/A
- **Claiborne County:** Activation of the ANS backup route alert system will be demonstrated by the Claiborne County Sheriff's Department. Claiborne County will select the route to be demonstrated. The Sheriff's Deputy will drive the route as specified in the Port Gibson Claiborne County Radiological Emergency Preparedness Plan within established time limits and read the notification message to the evaluator but will not broadcast to the public. The intended Public Address system will be tested IAW the Port Gibson Claiborne County Radiological Emergency Preparedness Plan. Out of Sequence
- **USCG:** Interview of capabilities and procedures for conducting River clearance operations.

Offsite Response Organizations (ORO) with FEMA-approved exception areas (identified in the approved Alert and Notification System Design Report) 5-10 miles from the nuclear power plant should demonstrate the capability to accomplish primary alerting and notification of the exception area(s) within 45 minutes following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. The 45-minute clock will begin when the OROs make the decision to activate the alert and notification system for the first

time for a specific emergency situation. The initial message should, at a minimum, include: a statement that an emergency exists at the plant and where to obtain additional information.

For exception area alerting, at least one route needs to be demonstrated and evaluated. The selected routes should vary from exercise to exercise. However, the most difficult route should be demonstrated at least once every six years. All alert and notification activities along the route should be simulated (that is, the message that would actually be used is read for the evaluator, but not actually broadcast) as agreed upon in the extent of play. Actual testing of the mobile public address system will be conducted at some agreed upon location.

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

ARCAs None

EVALUATION AREA 5: EMERGENCY NOTIFICATION & PUBLIC INFORMATION

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

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

Locations

MS SEOC (MEMA), MS State Department of Health/Div. of Radiological Health (MSDH/DRH), Emergency News Media Center/Joint Information Center (ENMC/JIC) and Claiborne County.

Extent of Play

- **MEMA (PIO):** Will demonstrate in conjunction with personnel from MSDH/DRH, utility, State of Louisiana, and Risk County PIO from ENMC/JIC.
- **MSDH/DRH:** See above
- **Claiborne County:** See above

Subsequent emergency information and instructions should be provided to the public and the media in a timely manner (will not be subject to specific time requirements). For exercise purposes, timely is defined as “the responsible ORO personnel/representatives demonstrate actions to disseminate the appropriate information/instructions with a sense of urgency and without undue delay.” If message dissemination is to be identified as not having been accomplished in a timely manner, the evaluator(s) will document a specific delay or cause as to why a message was not considered timely.

The ORO should ensure that emergency information and instructions are consistent with protective action decisions made by appropriate officials. The emergency information should contain all necessary and applicable instructions (e.g., evacuation instructions, evacuation routes, reception center locations, what to take when evacuating information concerning pets, shelter-in-place instructions, information concerning protective actions for schools and special populations, public inquiry telephone number, etc.) OROs should demonstrate the capability to use language that is clear and understandable to the public within both the plume and ingestion pathway EPZs. This includes demonstration of the capability to use familiar landmarks and boundaries to describe protective action areas.

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

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

ORO should demonstrate the capability to provide timely, accurate, concise and coordinated information to the news media for subsequent dissemination to the public. This would include demonstration of the capability to conduct timely and pertinent media briefings and distribute media releases as the situation warrants. The OROs should demonstrate the capability to respond appropriately to inquiries from the news media. All information presented in media briefings and media releases should be consistent with protective action decisions and other emergency information provided to the public. Copies of pertinent emergency information (e.g., EAS messages and media releases) and media information kits should be available for dissemination to the media.

ORO should demonstrate that an effective system is in place for dealing with calls to the public inquiry hotline. Hotline staff should demonstrate the capability to provide or obtain accurate information for callers or refer them to an appropriate information source. Information from the hotline staff, including information that corrects false or inaccurate information when trends are noted, should be included, as appropriate, in emergency information provided to the public, media briefings, and/or media releases.

ARCAs None

EVALUATION AREA 6: SUPPORT OPERATION/FACILITIES

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

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

Locations

Claiborne County, Adams County, Copiah County, and Warren County.

Extent of Play

- **Claiborne County:** Will be demonstrated at Pattison Fire Department during out of sequence events. Will demonstrate decontamination of two or more EWs and vehicle(s). Out of Sequence
- **Adams County:** Will demonstrate decontamination of six evacuees at Natchez High School through the use of portable decontamination stations; Out of Sequence
- **Copiah County:** Will demonstrate decontamination of six evacuees at Hazlehurst High School through the use of portable decontamination stations; will demonstrate two or more EWs and vehicle(s). Out of Sequence
- **Warren County:** Will demonstrate decontamination of six evacuees at Warren Central High School through the use of portable decontamination stations; will demonstrate two or more EWs and vehicle(s). Out of Sequence

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

Staff responsible for the radiological monitoring of evacuees should demonstrate the capability to attain and sustain a monitoring productivity rate per hour needed to monitor the 20% emergency planning zone (EPZ) population-planning base within about 12 hours. This monitoring productivity rate per hour is the number of evacuees that can be monitored per hour by the total complement of monitors using an appropriate monitoring procedure. A minimum of six individuals per monitoring station should be monitored, using equipment and procedures

specified in the plan and/or procedures, to allow demonstration of monitoring, decontamination, and registration capabilities. The monitoring sequences for the first six simulated evacuees per monitoring team will be timed by the evaluators in order to determine whether the twelve-hour requirement can be met. Monitoring of emergency workers does not have to meet the twelve-hour requirement. However, appropriate monitoring procedures should be demonstrated for a minimum of two emergency workers.

Decontamination of evacuees/emergency workers may be simulated and conducted by interview. The availability of provisions for separately showering should be demonstrated or explained. The staff should demonstrate provisions for limiting the spread of contamination. Provisions could include floor coverings, signs and appropriate means (e.g., partitions, roped-off areas) to separate clean from potentially contaminated areas. Provisions should also exist to separate contaminated and uncontaminated individuals, provide changes of clothing for individuals whose clothing is contaminated, and store contaminated clothing and personal belongings to prevent further contamination of evacuees or facilities. In addition, for any individual found to be contaminated, procedures should be discussed concerning the handling of potential contamination of vehicles and personal belongings.

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

The capability to register individuals upon completion of the monitoring and decontamination activities should be demonstrated. The registration activities demonstrated should include the establishment of a registration record for each individual, consisting of the individual's name, address, results of monitoring, and time of decontamination, if any, or as otherwise designated in the plan. Audio recorders, camcorders, or written records are all acceptable means for registration.

ARCAs None

EVALUATION AREA 6: SUPPORT OPERATION/FACILITIES

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

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

Locations

Claiborne County, Copiah County, and Warren County.

Extent of Play

- **Claiborne County:** Will demonstrate monitoring and decontamination of emergency workers and equipment at Pattison Fire Department during out of sequence events. Will demonstrate two or more EWs and vehicle(s). Out of Sequence
- **Copiah County:** Will demonstrate decontamination of six evacuees at Hazlehurst High School, through the use of portable decontamination stations; will demonstrate two or more EWs and vehicle(s). Out of Sequence
- **Warren County:** Will demonstrate decontamination of six evacuees at Warren Central High School, through the use of portable decontamination stations; will demonstrate two or more EWs and vehicle(s). Out of Sequence

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

The area to be used for monitoring and decontamination should be set up as it would be in an actual emergency, with all route markings, instrumentation, record keeping and contamination control measures in place. Monitoring procedures should be demonstrated for a minimum of one vehicle.

It is generally not necessary to monitor the entire surface of vehicles. However, the capability to monitor areas such as air intake systems, radiator grills, bumpers, wheel wells, tires and door handles should be demonstrated. Interior surfaces of vehicles that were in contact with individuals found to be contaminated should also be checked.

ARCAs None

EVALUATION AREA 6: SUPPORT OPERATION/FACILITIES

Sub-element 6.c- Temporary Care of Evacuees

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

Locations

Adams County, Copiah County and Warren County.

Extent of Play

- **Warren County:** Will be demonstrated at reception center located at Warren Central High School on Hwy. 27 in Vicksburg, MS. Demonstration will consist of registration table set –up and explain or display shelter layout w/ diagram.
- **Adams County:** Will be demonstrated at reception center located at Natchez High School located at 319 Sergeant Prentiss Dr. in Natchez, MS. Demonstration will consist of registration table set –up and explain or display shelter layout w/ diagram.
- **Copiah County:** Will be interviewed at reception center located at Hazelhurst High School located at 101 South Haley St. in Hazelhurst, MS. Interview will be based on procedures for temporary care of evacuees.

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

Congregate care staff should also demonstrate the capability to ensure that evacuees have been monitored for contamination, have been decontaminated as appropriate, and have been registered before entering the facility. This capability may be determined through an interview process.

If operations at the center are demonstrated, material that would be difficult or expensive to transport (e.g., cots, blankets, sundries, and large-scale food supplies) need not be physically available at the facility (facilities). However, availability of such items should be verified by providing the evaluator a list of sources with locations and estimates of quantities.

ARCAs None

EVALUATION AREA 6: SUPPORT OPERATION/FACILITIES

Sub-element 6.d. Transportation and Treatment of Contaminated Injured Individuals:

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

Locations

Warren County EOC.

Extent of Play

- **Warren County:** The Vicksburg Fire Department, Station #5 and the River Region Medical Center will demonstrate patient transport and treatment of a contaminated patient during a scheduled Medical Services (MS-1) Drill in Vicksburg MS.

Monitoring, decontamination and contamination control efforts will not delay urgent medical care for the victim.

Offsite response organizations (ORO) should demonstrate the capability to transport contaminated injured individuals to medical facilities. An ambulance should be used for the response to the victim. However, to avoid taking an ambulance out of service for an extended time, any vehicle (e.g., car, truck or van) may be utilized to transport the victim to the medical facility. Normal communications between the ambulance/dispatcher and the receiving medical facility should be demonstrated. IF a substitute vehicle is used for transport to the medical facility, this communication must occur prior to releasing the ambulance from the drill. This communication would include reporting radiation-monitoring results, if available. Additionally, the ambulance crew should demonstrate by interview, knowledge of where the ambulance and crew should be monitored and decontaminated, if required, or whom to contact for such information.

Monitoring of the simulated victim may be performed prior to transport, done en route, or deferred to the medical facility. Prior to using a monitoring instrument(s), the monitor(s) should demonstrate the process of checking the instrument(s) for proper operation. All monitoring activities should be completed, as they would be in an actual emergency. Appropriate contamination control measures should be demonstrated prior to and during transport and at the receiving medical facility.

The medical facility should demonstrate the capability to activate and set up a radiological emergency area for treatment. Equipment and supplies should be available for the treatment of contaminated injured individuals.

The medical facility should demonstrate the capability to make decisions on the need for decontamination of the individual, to follow appropriate decontamination procedures, and to maintain records of all survey measurements and samples taken. All procedures for the collection and analysis of samples and the decontamination of the individual should be demonstrated or described to the evaluator.

ARCA - 28-06-6.d.1-A-02 Condition: Improper monitoring techniques and contamination control procedures.

APPENDIX 4

EXERCISE SCENARIO

This appendix contains a summary of the simulated sequence of events (exercise scenario) which was used as the basic for involving emergency response actions by OROs in the GGNS exercise on September 9, 2009. This exercise scenario was submitted by the State of Mississippi and approved by FEMA Region IV.

INITIAL CONDITIONS

The plant is operating at 100% power early in its current operating cycle.

Low Pressure Core Spray (LPCS) pump red tagged out of service due to high vibration during last surveillance run. Maintenance found damaged motor bearings removed motor. We are currently in day three of the LPCS outage.

Division I Suppression Pool Make Up (SPMU) valve E30F001A red tagged out of service for motor inspection. Stroke times during last surveillance exceeded normal times. Electrical maintenance is awaiting WO to work.

As a result of a failed surveillance test, the 'A' diesel driven fire pump is being overhauled. It is expected to be returned to service on September 11.

E61F057 (Purge Exhaust containment outboard isolation valve) out of service due to failure of solenoid valve E61F508 (Purge exhaust containment outboard isolation solenoid valve)
LCO written.

Division II Diesel Generator monthly surveillance is due, Attachment I to be performed this evening.

Weather is partly cloudy, with winds from the southwest.

EOOS is Green.

NARRATIVE SUMMARY

The EXERCISE begins at approximately 0830.

<u>Time</u>	<u>Event</u>	<u>Details</u>	<u>Messages</u>
0830	Exercise start	The exercise begins at approximately 0830.	1
0835	Half scram	The control room will experience a Division II half scram due to loss of RPS bus including MG set. The control room will take actions per the ONEP. RPS will be switched to the alternate power supply and the half scram reset. (ONEP 05-1-02-III-2)	2
		A fire will occur in Division III switchgear room and inop Division III. (Fire will be simulated inside Div. III switchgear room. Fire brigade member will simulate response.) Simulator will lose 17AC buss.	
0845-0910	FIRE	The fire is simulated to be in the main cable tray that feeds buss 17AC. The cables will over heat and start to smoke resulting in a smoke alarm in the control room. The cables will continue to heat up until they ignite. This will first cause a CO ₂ predischage alarm. Auto actuation of the CO ₂ system will fail and no CO ₂ will be discharged into the room. The fire will continue to burn until the fire brigade applies the proper extinguishing agent. The cable will continue to smoke for approximately 10 minutes after the fire is extinguished. Major damage to the cables has occurred. Repair may take weeks. Fire to be extinguished in approximately ten minutes. FIRE BRIGADE ACTIVITIES ARE TO BE SIMULATED ONE FIRE BRIGADE MEMBER WILL RESPOND.	3, 4, 5, 6
0852	FIRE DAMAGE	Reports of fire damage	7

An **ALERT** (HA4) should be called based on the fire or explosion affecting the operability of plant safety systems required to establish or maintain safe shutdown.

		PI Data	
0852-0907	ALERT	_____ Initiating Condition Time (report of damage) _____ Declaration Time _____ Notification Time	8 Alert (Contingency)
0852-0907	Control Room actions	With both HPCS (due to loss of Buss 17AC) and LPCS inoperable, the plant should enter Tech. Spec. LCO 3.0.3 via LCO 3.5.1. Shutdown may commence but controllers will prevent a manual reactor scram as the shutdown method Activation of Emergency Response Facilities should begin.	9 Do not scram unit 10 Weather
0910	CO2 Valve	CO2 valve will not open	11
0937-0952	ERFs Operational	EOF, OSC and TSC should be operational.	12 ERDS (Contingency)

0955

**FEEDWATER
LINE BREAK,
LOCA & LOSS
OF 11BD5**

'A' feedwater line break inside the drywell will occur. Reactor scram will occur. Upon reactor scram, the recirculation pipe crack will fail initiating a LOCA. EP-2 and EP-3 should be entered. RHR B and C pumps start but RHR B trips and RHR C suction valve E12-004C has a disk to stem separation. (Not recoverable) RHR A starts, but injection valve E12F042A will not open due to breaker problem (E12FO42A indication lost immediately, but valve is recoverable after breaker work-valve cannot be operated manually). When RHR A is placed in the containment spray mode of operation, CTMT spray valve 1E12F028A fails to open (not recoverable and cannot be operated manually). RCIC starts and injects. Additionally, CRD and SLC are available for injection into the RPV. The Control Room will experience a loss of LCC 11BD5. An Operator should be sent to investigate. Operator will find feeder breaker 52-11501 tripped and will not be able to reclose. Affected loads should be identified and discussed. Power will be lost to Recirc pump 'A' discharge valve B33FO67A, Recirc pump 'A' suction valve B33FO23A and HPU A, as well as other loads. (Loss of power to the B33 valves prevents isolation of drywell leakage) Operations may call for Attachment 12. Upon LOCA, Drywell pressure will exceed 1.39 PSIG almost instantly. RPV water level will drop below -167"

1005

RPV water level

13
LCC-11BD5
14
F042A bkr
15
1E12F028A
16
RHR 'B'
17
RHR 'C'

A **Site Area Emergency (SAE)** should be declared based on: FS1-Loss or Potential Loss of ANY Two Barriers. The loss and potential loss are:

(Time)_____RC 1 (**Loss**-Pressure >1.39 psig with indications of reactor coolant leak in drywell)
and
(Time)_____FC2 (**Potential Loss**- RPV water level less than -167 inches)

1005-1020	SAE	PI Data	18 SAE Contingency message 19 Evacuation Alarm
		_____Initiating Condition Time.	
		_____Declaration Time	
		_____Notification Time	
		A Site Evacuation should be ordered and personnel accountability initiated.	
		Crew should be able to restore and maintain RPV water level above -160".	
1025 ~1035- 1050	Attachment 12 Evacuation	If requested, Attachment 12 will be completed Evacuation accountability should be complete	20
1052- 1107	JIC	JIC should be operational	
1100	Emergency Depressurization	Containment pressure will begin to increase. Operations will perform Emergency Depressurization based on PSP curve. Operations should request attachment 14 to vent containment. RPV level will go below -191 in. (Fuel Clad Loss FC2)	
1110	DIV I SPMU INOPERABLE	Division I SPMU is inoperable due to being tagged out, but can be returned to service by clearing the tagout, if pursued. The valve can be recovered.	21

The containment pressure continues to increase and will reach 15psig. (15 psig CTMT indicates **potential** loss of Containment-PC1) A **General Emergency** (FG1) should be declared based on: Loss of 2 out of 3 fission product barriers with a potential loss of 3rd barrier.

The two losses:

(Time) _____ FC2 RPV water level
<-191 (**Loss**)

(Time) _____ RC1 Pressure >1.39 psig with
indications of a reactor coolant
leak in the drywell (**Loss**)
or

(Time) _____ RC 2 RPV water level
<-167 (**Loss**)

22
Contingency
message

23
Attachment 13
(Vent line up)
will complete at
1120

1120-
1135

GE

The potential loss:

(Time) _____ PC1 15 psig and rising in
Primary Containment (**Potential
loss**)

PI Data

_____ Initiating Condition time
(Time of third loss or potential loss)

_____ Declaration time

_____ PAR Accuracy

_____ Notification time

_____ PAR Notification time

The Standard PAR should be issued with the General Emergency:

1120-1135 **Protective Action Recommendation**

Evacuate: 2 Miles All Sectors
and
Evacuate 5 Miles in Downwind Sectors
and
Shelter: Remainder of 10 Mile Emergency Planning Zone (EPZ) with the exception of areas previously evacuated.
and
Consider prophylactic use of Potassium Iodide in accordance with State Plans.

24
Step Off Pad
Violation

25
Contaminated
personnel

1122 **Start of release**

Start of release with Containment Venting.
Release is UNMONITORED and UNFILTERED

26
Simulator
Habitability
signs

27
KI Use

28, 29, 30
OMT Surveys

Wind direction changes from 200 degrees to 105 degrees

Affected sectors change from A, B, C to N, P, Q.

1220	Wind Shift	<p>_____ Initiating Condition Time (Time new sector is added)</p> <p>_____ PAR Issue Time (Time next to RAC initials on notification form).</p> <p>_____ Notification Time</p>	31 PAR Contingency message
1255	RHR A Breaker	<p>If pursued, the repair team on the RHR A F042A breaker will be successful in repairing breaker. Operations may open the valve and inject water into the reactor vessel from the suppression pool.</p>	32
1320	Leak isolation	<p>Maintenance will restore power to valves B33F023A and B33F067A. They are available for the control room to use to isolate the leak by closing the valves and begin restoring level to normal. Containment pressure will begin lowering.</p>	33
1320	Rad Release	<p>Radiological release is terminated due to securing containment venting.</p>	
1330	Reactor Water Level	<p>Reactor water level is returned to normal.</p>	
1335	Recovery	<p>Recovery discussions should be occurring. Consideration should be given to placing shut down cooling in service and the radiation problems associated with placing it in service.</p>	
1430	Termination	<p>Exercise is terminated.</p>	34 Exercise terminated

APPENDIX 5
MEDICAL SERVICES DRILL

Grand Gulf Nuclear Station

Medical Services Drill

July 14, 2009

Vicksburg Fire Department and River Region Medical Center

Vicksburg Fire Department and River Region Medical Center demonstrated their ability to respond to and treat contaminated injured individuals during an out of sequence Medical Services (MS-1) drill conducted on July 14, 2009.

Per the MS-1 drill scenario, when Grand Gulf Nuclear Station declared a General Emergency (GE), an evacuation of all people within five miles of Grand Gulf Nuclear Station commenced. At 0856, River Region Medical Center was contacted (by a drill controller) and requested to go to standby status in preparation for receipt of contaminated injured patients.

Two fishermen on a private lake near Highway 61 and 1/2 mile south of Floyd Road heard the evacuation sirens. While evacuating and trying to carry their equipment uphill, fisherman one dropped a 22 caliber pistol, carried in case of snakes, accidentally shooting fisherman two in the lower right leg. Fisherman two had moderate bleeding from the wound, and was unable to walk. Fisherman one helped him to the car, and drove north on Hwy 61 to the Traffic Control Point at Floyd Road. Fisherman one was monitored and sent to the reception center for first aid and decontamination. Fisherman two was checked for vitals, a field dressing was placed on his wound, and the Vicksburg Fire Department ambulance was contacted. A thorough survey was not done by the Highway Patrol Officer on the scene, due to general area contamination levels; however, he did verify the presence of contamination on both men.

Participating agencies at the accident scene and at the hospital were as follows:

- Vicksburg Fire Department for emergency treatment and medical transport
- River Region Medical Center for patient decontamination and treatment
- Mississippi Emergency Management for coordination
- Entergy for coordination and controller support
- Warren County Civil Defense
- Claiborne County Civil Defense

Vicksburg Fire Department Ambulance Response:

The radiological equipment was operationally checked at 0830, prior to the start of the drill. The two Ludlum Survey Model 14C survey meters were checked for response to a radioactive source. The radioactive check source for both Ludlum Model 14 C survey meters was attached to meter with serial number 64678. The manufactures operations manual was on hand but not utilized. Use of the operations manual or similar procedure would provide consistency for individuals which do not use this meter on a frequent basis. *The individual performing the operations check was familiar with the survey meter; however, increased familiarity is recommended.*

Dosimeters were checked, zeroed and information recorded on a Personal Radiation Exposure Card for each individual. A 0-20 R and a 200 mR dosimeter were prepared for each individual using a CDV 750 Charger.

All items were in good repair and without defects. The table below includes a listing of dosimetry and radiological survey instruments available for use by ambulance personnel.

Vicksburg Fire Department Radiological Emergency Response Equipment:

<u>Dosimetry</u>	
<ul style="list-style-type: none">• 0-200 mR Arrowtech CDV-138 pocket dosimeters• 0-20 R Arrowtech CDV-730 pocket dosimeters• (2) Simulated permanent record dosimeters• 1 Jordan Electronics CDV 750 dosimeter charger	<ul style="list-style-type: none">• (2) Ludlum Model 14 C survey meters, calibrated 03/09• Protective clothing (paper coveralls with hood, booties, disposable gloves, respiratory protection, eye protection)• Bed sheets for cocooning the patient and for use in contamination control an the accident scene

Upon receiving notification of an injured contaminated individual via hard-line phone, two Emergency Medical Technicians (EMTs) were directed by the Fire Chief to don personal protective equipment (PPE). Dosimeters were zeroed and operationally checked while the EMTs donned PPE. Each individual was issued a simulated permanent record dosimeter (TLD), a CDV 138 200 mR dosimeter and a CDV 750 0-20 R dosimeter. Individual and equipment information was recorded on a TLD Control Log; an Emergency Worker Personal Data Card and a Permanent Radiological Record Card.

No radiological briefing was observed prior to issue and dispatch of the EMT's. However the EMT's were familiar with proper placement and use of TLDs and dosimeters. The EMT's checked dosimeters every 15 to 30 minutes or as time allowed between patient care and transport (due to safety precautions, driver checked dosimetry during periods of opportunity when vehicle was stationary) to River Region Medical Center. *Development of a standard briefing is recommended for the dosimetry issue process to ensure all Emergency Workers (EWs) are provided sufficient guidance on radiation exposure limits and control measures.*

The Vicksburg Fire Department, Fire Station #5, located on Highway 61 South, Vicksburg, Mississippi successfully demonstrated the capability to transport contaminated injured individuals to the River Region Medical Center. This demonstration resolves 2006 Area Requiring Corrective Action (ARCA) - 28-06-6.d.1-A-02 Condition: Improper monitoring techniques and contamination control procedures.

The Warren County Emergency Management Agency received a drill message notification of a General Emergency at Grand Gulf Nuclear Station at 0854. The Warren County Emergency Manager promptly notified River Region Medical Center of the General Emergency at 0856. At 0902, Vicksburg Fire Station #5 received notification from Warren County 911 to dispatch an

ambulance crew to the Coppeartt Mobile Home Park for a possible injured radiological contaminated person. Upon receiving notification of an injured contaminated individual via hard-line phone, two Emergency Medical Technicians (EMTs) were directed by the Fire Chief to don personal protective equipment (PPE) (tyvek suits with hoods, rubber booties, three pair gloves per hand per individual, respiratory protection and eye protection) for a radiological dispatch. All openings on the tyvek suits were secured with masking tape. By 0921, the ambulance crew was completely dressed in PPE and ready to respond.

At 0925, initial responders from Vicksburg Fire Station #5 demonstrated how they would survey to detect and establish radiological hot and warm zones. Ludlum Model 14C Survey Meters was used to detect contamination and establish the hot and warm zones. The Ludlum Model 14C Survey Meters received an operational check prior to the start of the exercise to ensure operational status. The demonstration was adequate; however, several areas were surveyed expeditiously although the areas in question were surveyed twice. *Reiterating the appropriate speed at which to survey with the pancake probe is recommended. It is also recommended that at this stage, a controller inject be provided, stating what level of contamination is being detected by survey meters.*

Once the hot and warm zones were identified, the first responders approached the patient and began to assess patient injury status. To control the spread of contamination, a linen sheet was placed on the ground next to the patient; the backboard was placed on top of the linen sheet; a second linen sheet was placed over both, the backboard and initial linen sheet. The first responders identified the patient's injuries and proceeded to move the patient on top of the second linen sheet with backboard underneath. The second linen sheet was wrapped around the patient and loosely secured. The first responders then lifted and moved the patient to the warm zone where the ambulance crew was waiting (in the cold zone) to receive the patient. The first responders provided a briefing of the patient's vitals, location of gunshot wound and that the patient was contaminated. The patient had not been surveyed but was located within the hot zone and assumed contaminated. The patient received the initial contamination survey at River Region Medical Center.

The ambulance crew conducted a brief assessment of the patient; placed linen sheets on the floor and seats of the interior of the ambulance; and loaded the patient. At 0931, the ambulance departed the scene en route to River Region Medical Center. The EMT/ambulance crew simulated administering oxygen and provided medical care.

At 0936, the EMT/ambulance crew provided patient vitals, age, gender, type of injury, presence of radiological contamination and estimated time of arrival at River Region Medical Center via vehicle radio. Following the hospital notification, the rear EMT checked his dosimeters at 0948. He told the EMT/driver to check his dosimetry when the vehicle was at a complete stop due to the inclement weather. The ambulance arrived at River Region Medical Center at 0955. Both EMTs checked their dosimetry once again.

At 0958, the patient was removed from the ambulance onto a green floor covering secured to the ground with duck tape surrounded by ropes and stanchions establishing a restricted area and guiding ambulance crew and patient directly to the decontamination room adjacent to the

Emergency Room entrance. At 1005, the medical center staff opened the decontamination room door and began receiving the patient. The ambulance crew provided a patient status briefing to decontamination room medical personnel.

The ambulance crew did not bring their procedural guidance with them, therefore both EMTs were unsure where to proceed for individual (Emergency Worker) and vehicle monitoring and decontamination. However, the ambulance crew stated they would have contacted the Fire Chief of Station #5 for assistance and procedural guidance for the decontamination process. Emergency Worker and vehicle decontamination is located at the Vicksburg Fire Department, Fire Station #5. Additional familiarity with the Warren County REP plan would be beneficial. The Ambulance crew was knowledgeable of proper doffing procedures for PPE using contamination control. They were also knowledgeable of how to perform gross decontamination of the interior of the ambulance. The lead member of the ambulance crew demonstrated proper doffing of the PPE and containing the used PPE until instructed on what to do with the contaminated materials.

The outside (ambulance) portion of the Medical Services Drill was completed at 1020.

River Region Medical Center Response:

River Region Medical Center received their first call at 0856 informing the hospital of the General Emergency (GE) classification at Grand Gulf Nuclear Station (GGNS) and requesting that the hospital be placed in standby status. The notification call was received in the Emergency Department (ED) reception area; the information was immediately given to the ED Interim Director.

Once the Interim Director (ID) was notified of the GE emergency classification, she immediately accessed the hospital's Emergency Department of Radiation Accidents procedure. It was noted that a current copy (revision 2, dated 2/09) is maintained in the ED policy and procedures book that was maintained in the ED nurses' work area.

The ID reviewed the emergency response procedure with one of the ED nurses; this nurse was subsequently assigned as the Radiation Emergency Area (REA) nurse. They discussed whether they should set up the REA while in standby status, and decided to have the hospital operator call all radiological emergency responders and have them report to the ED. The ID contacted the hospital operator and requested activation of "code orange." During the drill, the ID worked as the buffer zone nurse and was in charge of the hospital's radiological emergency response.

Individuals from the Emergency Department (several nurses and a physician), Radiology, Security, Building Services, and Environmental Services responded. Security Department personnel secured both the hospital's main entrance and the Emergency Department entrance. Building Services and Environmental Services set up the REA area, including: the buffer zone, the REA decontamination room and the ambulance entrance. They covered the floor of the buffer zone and ambulance area with heavy plastic to prevent the floor from becoming contaminated contamination. The plastic was pre-cut to aide in rapid set up of the area. They set up stanchions, parking cones and radiological signs to indicate the boundary of the REA. The

REA consisted of an ambulance receiving area with a separate entrance to the decontamination room, the decontamination room (tiled floor and walls) and a buffer zone in the hallway outside of the decontamination room.

Emergency Department and Radiology Department staff set up additional equipment in the REA and buffer zone hallway. Two storage cabinets were wheeled into the ambulance access hallway during set up of the Radiation Emergency Area (REA). The cabinets held radiological survey instruments (Ludlum Model 12 pancake GM detectors), dosimetry, protective clothing, plastic bags, radiological posting supplies, procedural forms, radiological sampling kit and radiological decontamination supplies. Additional supplies were available from normal hospital stores. The decontamination room contained a specialized decontamination gurney that was set up with a drain bottle to contain contaminated water. Additional decontamination and radiological sampling supplies were taken into the decontamination room for use during patient treatment. A summary of the hospital's prestaged radiological supplies is provided in the table below.

River Region Medical Center Radiological Emergency Response Equipment:

<p><u>Two large storage cabinets with radiological supplies:</u></p> <ul style="list-style-type: none"> • Dosimetry (details provided below) • Protective clothing: paper coveralls, paper aprons, face shields, paper and plastic high top booties, disposable gloves, tape • Large trash bags • Radiological ropes and signs for posting the REA • Step off pad to put down at the egress of the REA decontamination room • Precut plastic to put down in the ambulance bay and buffer zone • Precut plastic for putting down a clean pathway to do patient transfer when decontamination was complete • Storage box with multiple copies of procedure forms (for example: patient survey forms, dosimetry issue forms) • Clipboards with forms for patient survey, dosimetry issue and REA setup • Radiological sampling kit • Decontamination kit • Radiological Survey Instruments: ⇒ Three Ludlum Model 12 	<p><u>Dosimetry (approximately 10 of each):</u></p> <ul style="list-style-type: none"> • 0-500 mR DCA model 883 pocket dosimeters; leak check due 11/09 • 0-1.5 R DCA model#865 pocket dosimeters; leak check due 11/09 • Landauer Permanent Record Dosimeters; control dosimeters • Finger ring permanent record dosimeters • 2 dosimeter chargers <p><u>Wall posters:</u></p> <ul style="list-style-type: none"> • REAC/TS patient treatment poster • Protective clothing donning and doffing • Radiological accident response information <p><u>Inside the decontamination room:</u></p> <ul style="list-style-type: none"> • Decontamination gurney • Two drain bottles • Large trash can • Shower heads (one overhead, one hand held mounted to wall) • Stanchions for posting REA <p><u>Additional Supplies:</u></p> <ul style="list-style-type: none"> • Current copies of the Emergency Department Management of Radiation Accidents procedure
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River Region Medical Center Radiological Emergency Response Equipment:

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|---|---|
| instruments with pancake GM detectors; calibration due on all three due 11/09; also included a 9 microcurie Cesium 137 source for response checking instruments | (revision 2, dated 02/09) |
| ⇒ Two Merlin-Gerin RAM-GAM-1 radiation survey meters; calibration due 12/09 (note; these instruments were not used) | <ul style="list-style-type: none">• Telephones• Copy machine• Additional clothing, medical and decontamination supplies were available from normal hospital stores• Portable X-ray machine |

NOTE: Potassium iodide is not stored or used at this location outside the 10-mile Emergency Planning Zone (EPZ).

The Ludlum Model 12 radiation survey instruments were checked for operability prior to use. Each instrument was checked to verify that it responded to a 9 microcurie Cesium 137 source mounted on the inside of one of the storage lockers. The radiology technician conducting the instrument response check followed the hospital procedure (Attachment VI, step #6) and verified that the “click rate” increased when the detector was held close to the radioactive source. The hospital’s procedure did not require that the instrument respond within a pre-established range of readings when exposed to the radioactive source as required by Exercise Evaluation Criterion 1.e.1. *It is recommended that the hospital procedure be revised to include instructions for conducting the radiation survey instrument radioactive source response check to include a acceptable “range of readings” for instrument response, as required by Exercise Evaluation Criterion 1.e.1 and ANSI N323A-1997 (e.g. +/- 20% of a reference value for the radiation source/survey instrument combination).*

The Emergency Department Interim Director was designated as the buffer zone nurse and was responsible for dosimetry issue and exposure control. She issued each Radiation Emergency Area (REA) responder a 0-500 mR and 0-1.5 R self reading dosimeter, a Landauer optical luminescent permanent record dosimeter and a finger ring dosimeter. Dosimetry was issued to the buffer zone nurse, a radiology technician assigned to work inside the buffer zone, the REA nurse, the REA radiology technician and the REA physician. When self reading dosimeters were issued, the buffer zone nurse ensured they were all on zero. Dosimeters were zeroed as necessary using a pistol type piezoelectric dosimeter charger. She logged dosimeter readings and serial numbers on form Attachment IX, Dosimetry Issue Sheet, as dosimetry was assigned to REA response personnel. This form also included serial numbers of both whole body and finger ring permanent record dosimeters.

When the buffer zone nurse issued dosimetry to REA response personnel, she made sure that each person had the correct dosimetry and told them that they were to read their dosimeters every 15 minutes. During the drill, she reminded staff to read dosimeters on several occasions. Responders read dosimeters, and reported results to the buffer zone nurse. She logged results each time dosimeters were read.

Emergency responders were interviewed to determine if they knew how to read their dosimeters and if they knew their emergency radiation exposure limit. All responders questioned demonstrated how to read a dosimeter, explaining the dosimeter's measurement range and how to read the "hairline." One responder indicated that she had a 5 Rem limit when asked about her radiation exposure limit. When asked what the radiological emergency exposure limit was for hospital responders, the buffer zone nurse (who was in charge of dosimetry issuance and exposure tracking) indicated that she would replace the worker if their dosimeter reached $\frac{3}{4}$ scale or went off scale ($\frac{3}{4}$ scale is equivalent to 375 mR on the 0-500 mR dosimeter and is below the 1000 mR administrative radiation exposure limit). Her response was based on review of the hospital procedure Section 6.4, where it says to exit the area if your dosimeter is off scale or $\frac{3}{4}$ scale. The hospital's Emergency Department Management of Radiological Accidents procedure (Revision 2, dated 2/09) specified a 1000 mRem radiation dose limit for hospital radiological workers. It appears that this limit is intended to be a 1000 mR radiation exposure limit, and would allow for subsequent calculation of TEDE dose within the 5 Rem EPA guideline limit for emergency workers. *To ensure all hospital responders are appropriately informed of their emergency radiation exposure limit, it is recommended that the 1000 mR administrative radiation exposure limit be prominently posted in the REA area, and included in a verbal briefing when dosimetry is issued.*

At approximately 0936 the hospital Emergency Department received a call from the Vicksburg Fire Department Ambulance Service and was advised that a contaminated patient was en route to the hospital; additional medical information was provided. At this time, all REA responders donned protective clothing. The buffer zone responders and REA decontamination room responders all wore shoe covers (two pair), tyvek coveralls, a tyvek apron, disposable gloves, hair bonnet and a face shield. Dosimetry was secured to the outside of their protective clothing. The ambulance arrived at 0955, while REA personnel were completing their preparations; since the patient was stable with normal vital signs, the patient was held in the ambulance bay while preparations were completed.

At 0958 the contaminated injured patient was taken out of the ambulance and was moved into the decontamination room at 1005. Patient care was transferred to the Emergency Department physician. The patient was transferred from the ambulance gurney to a specialized decontamination table. The physician was responsible for medical care and immediately began assessing the patient's medical condition, assisted by the REA nurse. A radiology technician was assigned responsibility for contamination monitoring. She monitored the patient concurrent with the physician performing medical assessment. During the entire response, it was evident that medical care took priority over contamination control or decontamination.

During the initial medical assessment, the physician determined that the patient had abrasions on her forehead, left leg, and left arm. She also had a small caliber gunshot wound on her lower right leg. Medical assessment concluded that the patient could be decontaminated prior to medical treatment. The initial contamination survey indicated radioactive contamination on her forehead (500 counts per minute (cpm)), her left arm (1600 cpm), the gunshot wound (1200 cpm) and her right hand (500 cpm). While monitoring for contamination, the radiology technician appropriately switched scales on the Ludlum Model 12 survey instrument, and calculated the correct instrument response based on the meter reading and the selected scale. She conveyed survey results to the buffer zone nurse, who logged them on Attachment IV, Patient

Survey Form. It was noted that the Ludlum Model 12 pancake GM detector was covered with a latex surgeon's glove to prevent contamination. Per FEMA-REP-22 background document, Table 12, a latex surgeon's glove can reduce the instrument response by approximately 35%. *It is recommended that the practice of using a latex glove be changed to require use of thin plastic (e.g. Saran wrap) or a thin plastic sandwich bag with a density of no more than 1.1 mg/cm².* Refer to FEMA-REP-22 and Table 12 of the background document for further information.

When individual conducting monitoring was asked what meter reading indicated that the person was contaminated and required decontamination, she responded that any reading above background was considered contaminated. It was noted by the evaluator that the hospital's procedure is not clear on the action level for decontamination; In Section 6.7.1 the responder is instructed to decontaminate any area of the patient where monitoring indicates contamination above background levels in accordance with Section 6.8. Section 6.8 provides instruction on decontamination methods. This section also indicates that areas and equipment should not be released for unrestricted use until a survey verifies that it has less than 100 cpm above background. *It is recommended that consistent decontamination decision criteria be utilized for individuals, areas and equipment.* FEMA-REP-22, *Contamination Monitoring Guidance For Portable Instruments Used For Radiological Emergency Response To Nuclear Power Plant Accidents*, recommends a decontamination decision criteria of 300 cpm. FEMA-REP-22 also allows for using a lower decision criteria (as is currently specified in the hospital procedure); however, it is noted that the FEMA-REP-22 300 cpm decision criteria measured with a pancake GM detector (as used by the hospital) is a medically conservative value and is well below the threshold for a health effect for exposure to low level radioactive contamination.

Hospital "chucks" were placed under the left arm to absorb water during decontamination efforts. The left arm was initially decontaminated using a saline flush. After several decontamination attempts, the abrasion still measured 1000 cpm. The buffer zone nurse directed the circulating nurse to contact the Radiological Emergency Assistance Center/ Training Site (REAC/TS) in Oak Ridge, TN for further direction. The buffer zone nurse had the REAC/TS contact telephone number readily available. The call (simulated) was made to REAC/TS when the circulating nurse was advised that soap/water could be used to wash the area. They were cautioned not to scrub vigorously and damage tissue. REAC/TS reminded the nurse to take samples prior to decontamination.

Prior to any further decontamination attempts, the REA nurse took samples of body orifices (eyes, nose, ears, mouth) and all contaminated areas. Samples were individually packaged in sample containers and labeled with sample location and other detailed information. The buffer zone nurse indicated that samples would be retained for analysis by a qualified laboratory (e.g. Mississippi Emergency Management Agency). Blood samples were also taken and transferred to the hospital laboratory for analysis (the sample was surveyed for contamination prior to transfer out of the REA).

The REA physician was called to respond to an actual event and the drill continued with the REA nurse simulating/discussing the physician's actions. Each contaminated area was decontaminated separately, with the gunshot wound reserved for last. Each time an area was decontaminated, it was initially flushed with saline and remonitored. If saline did not remove the

contamination, then the area was washed using baby shampoo, saline and 4x4 gauze pads. The REA nurse demonstrated appropriate decontamination attempts, taking care to only wipe and area once with the gauze pad, then folded the pad and wiped again with a clean side, or used a new pad. The method demonstrated minimized the spread of radioactive contamination as the area was decontaminated. Additionally, the REA nurse changed his gloves frequently to minimize the spread of contamination. For example, he changed his gloves after handling/decontaminating each contaminated area or after handling potentially contaminated materials.

The physician was not present during decontamination efforts on the gunshot wound. The bullet was removed and retained for analysis (it was put into a sample container). It was determined after several decontamination attempts, that the contamination level was not being reduced with their efforts. A portable x-ray machine was rolled to the REA decontamination room boundary and the patient gurney moved so an x-ray of the leg could be taken. An x-ray film was handed into the room and placed under the leg. The film was wrapped in plastic to prevent contamination. After the x-ray was taken, the radiology technician opened the plastic bag and the buffer zone radiology technician carefully removed the film from inside the bag. The radiology technician stated that she had touched several places on the x-ray machine handle; those areas were surveyed to ensure they were not contaminated. The REA nurse and radiology technician said that if the survey indicated that the x-ray machine was contaminated, they could decontaminate it with the supplies in the room (4x4 wipes, baby wipes, water, etc).

When the leg x-ray was read, it was determine that no further foreign bodies were in the leg (controller inject). The circulating nurse contacted REAC/TS again and told them that that after bullet removal and multiple decontamination attempts, the wound still measured 300 cpm. REAC/TS advised the hospital that the 300 cpm reading would not pose a health hazard and they could continue with medical treatment and bandage the area. The left arm abrasion was 80 cpm after multiple decontamination attempts; REAC/TS gave the hospital the same advice regarding the low level of contamination on the arm (no significant health effect from residual contamination; cover and continue treatment).

When decontamination was complete and areas with residual contamination were covered (wrapped in gauze) the patient was surveyed again. A complete whole body survey was conducted and no further contamination was found. A clean plastic sheet was put down on the floor and a clean stretcher rolled into the decontamination room (it was rolled in over the plastic to keep the stretcher wheels from contamination). The REA staff changed gloves and transferred the patient to the clean stretcher. The stretcher was surveyed for contamination in all areas touched by REA staff. The stretcher, with patient, was wheeled out of the REA and the patient was transferred to another location for routine medical care.

The REA nurse was interviewed to determine if any special precautions would be taken when checking or changing dressings on the areas with residual "fixed" contamination. The nurse indicated that the dressings should be marked to indicate that there was contamination underneath. They should be checked for contamination when removed.

The REA nurse and radiology technician prepared to exit the decontamination room. They referenced a poster on the door that provided instructions for doffing their protective clothing. During doffing, the REA nurse removed his gloves prior to removal of his paper coveralls and shoe covers. He then removed his shoe cover with a bare hand. At that time, he realized that he may be contaminated. He discussed what to do with the buffer zone nurse and radiology technician. They collectively determined that he would be surveyed, and if contaminated, would be decontaminated using techniques similar to that used for patient decontamination. If needed, the hospital had replacement clothing. After the REA nurse completed removal of his protective clothing, the buffer zone radiology technician conducted a full body survey for contamination using the Ludlum Model 12 pancake GM detector. Appropriate radiological survey techniques were demonstrated in accordance with hospital procedure (detector held approximately one inch from the surface, scanning at approximately two inches per second). Once the REA nurse completed egress and monitoring, the REA radiology technician removed her protective clothing, in the correct sequence, and exited the REA.

Ambulance Recommendations:

Recommendation #1: The individual performing the radiation survey instrument operations check was familiar with the survey meter; however, increased familiarity and additional practice is recommended.

Recommendation #2: Development of a standard briefing is recommended for the dosimetry issue process to ensure all Emergency Workers (EWs) are provided sufficient guidance on radiation exposure limits and control measures.

Recommendation #3: Reiterating the appropriate speed at which to survey with the pancake probe is recommended during training of ambulance personnel.

Hospital Recommendations:

Recommendation #4: During survey instrument operability checks, the hospital's procedure did not require that the survey instrument respond within a pre-established range of readings when exposed to the radioactive source as required by Exercise Evaluation Criterion 1.e.1. It is recommended that the hospital procedure be revised to include instructions for conducting the radiation survey instrument response check to include a acceptable "range of readings" for instrument response, as required by Exercise Evaluation Criterion 1.e.1 and ANSI N323A-1997 (e.g. +/- 20% of a reference value for the radiation source/survey instrument combination).

Recommendation #5: To ensure all hospital responders are appropriately informed of their emergency radiation exposure limit, it is recommended that the 1000 mR administrative radiation exposure limit be prominently posted in the REA area, and included in a verbal briefing when dosimetry is issued.

Recommendation #6: When individual conducting monitoring was asked what meter reading indicated that the person was contaminated and required decontamination, she responded that any reading above background was considered contaminated. It was noted by the evaluator that the hospital's procedure is not clear on the action level for decontamination; In Section 6.7.1 the responder is instructed to decontaminate any area of the patient where monitoring indicates

contamination above background levels in accordance with Section 6.8. Section 6.8 provides instruction on decontamination methods. This section also indicates that areas and equipment should not be released for unrestricted use until a survey verifies that it has less than 100 cpm above background. It is recommended that consistent decontamination decision criteria be utilized for individuals, areas and equipment. FEMA-REP-22, *Contamination Monitoring Guidance For Portable Instruments Used For Radiological Emergency Response To Nuclear Power Plant Accidents*, recommends a decontamination decision criteria of 300 cpm.

Recommendation #7: In order to optimize the Ludlum Model 12 instrument response to radioactive contamination, it is recommended that the practice of using a latex glove be changed to require use of thin plastic (e.g. Saran wrap) or a thin plastic sandwich bag with a density of no more than 1.1 mg/cm². Refer to FEMA-REP-22 and Table 12 of the background document for further information.

APPENDIX 6

RECOMMENDATIONS

RECOMMENDATIONS FOR IMPROVEMENT:

1.1 State Emergency Operations Center

- A greater and renewed emphasis should be placed on frequent communications between the Mississippi SEOC and the host counties (Adams, Copiah, Hinds and Warren Counties). The counties should have the ability and desire to remain informed of current events within a reasonable timeframe. This can be accomplished through increased phone calls between SEOC and counties; Area Coordinators from the SEOC to the counties can also be used more effectively; lastly, the SEOC can allow a County representative to coordinate and provide information from the SEOC to the County.
- Recommend MEMA revise its procedures for river clearance to include specific responsibilities for the USCG, MDOT, BWF and Claiborne County.
- After the exercise it was noted that host counties of Adams, Copiah and Warren did not receive the EAS message. There was no actual broadcast of the EAS message; therefore, the broadcast could not be monitored. The news releases and EAS message were inserted into WebEOC for this exercise. It may be appropriate for counties to receive printed copies of the EAS message(s) regardless of the broadcast being made. This can easily be accomplished by ESF-15 (SEOC) including the counties as addressees in the e-mails which convey the message(s) to the ENMC, the ENMC could forward the message(s) to those counties, or Mississippi State liaisons to those counties could ensure the counties are aware of the EAS message(s).

1.5 Radiological Laboratory

- The Mississippi Department of Health/Division of Radiological Health laboratory personnel currently utilizes their normal issue permanent record dosimeter during a Grand Gulf Nuclear Station (GGNS) radiological emergency. Since EPA 400, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, 1982, requires that occupational exposure be separated from emergency exposure, it is recommended that the laboratory establish a method to track and assign emergency radiation exposure by either issuing a separate “emergency” permanent record dosimeter, or establishing a method of subtracting emergency dose from their standard issue permanent record dosimeter reading.
- Appropriate count times should be established for each sample type to ensure that sensitivity requirements for each GGNS incident isotope are met and samples are processed in a timely manner. In some cases a shorter count time may be warranted (e.g. charcoal sample); in some cases a longer count time may be needed (e.g. food crops).
- The report format and units (e.g. picocurie/kilogram or picocurie/M²) for sample results should be identified by dose assessment personnel by sample type; analysis capabilities should be modified to ensure results are produced in those units.

- It is recommended that an easily readable sample report file/report containing critical isotopic information be developed that will simplify dose projection calculations and reduce the risk of error in interpreting the current analysis report.
- Sample holder jigs should be fabricated for samples that cannot be reduced by aliquot (e.g. particulate and charcoal sample). Jigs should accommodate geometry changes to meet system dead time specifications for high activity samples.
- The analysis library should be verified against EPA and FDA guidance to ensure that all critical isotopes are included in the default gamma spectrum analysis library.

1.6 Radiological FMT 1

- Consideration should be given to developing appropriate operational checks for the Ludlum Model 19 and the Ludlum Model 14C with the 44-40 probe to validate the operations within a specific range of readings.

1.6 Radiological FMT 2

- Create a checklist of items to be discussed during a pre- deployment briefing and include that checklist in the Manual of Procedures for the RERT.
- Include a pre deployment check in the RERT procedure manual for all survey and counting instruments. Ensure each meter has an acceptable response range on it for each probe used with that meter and the specific source attached to that meter.
- To ensure the accuracy of the air sampling calculations, the RERT should report to the RERTC the raw data used to perform the calculations and not just the end results. This way the RERTC or assistant could check the calculations.
- The controller for this team had a difficult time using the given plume map and deciding if the data he was to supply to the RERT for a given location would be an elevated reading or background. Some additional training for controllers would be extremely helpful and instead of a single map showing the plume as it would appear after a wind change (which did not take into account the effect that the wind change would have on the plume as it traversed between the two wind directions). A set of maps showing plume progression over time would ease the controller's task. There is also a system available called "plume tracker" that supposedly uses a GPS, computer and simulated radiation meter to track the location of a team in real time, compare it to data in the computer for plume location at that time and provide real time readings on the meter. This simulates hitting the edges of the plume and indicates increasing readings as the centerline is approached.

2.1.2 Traffic Control Points

- Implement a process to verify operational readiness of batteries for dosimetry equipment.
- Provide updated maps and have additional maps available for out-of-area (mutual aide) resources that may be needed to conduct Backup Route Alerting.

2.1.4 Claiborne County Schools

- There are currently no systems in place for 2-way communications with bus drivers. Consider developing a 2-way radio system that would allow bus drivers to communicate with the bus barn and schools.

3.1.2 Adams County Reception and Congregate Care

- Recommend that vehicles only be identified by license plate number, additionally recording the VIN unnecessarily delays the registration process.
- Procedures should be developed to address how vehicles are returned to evacuees not requiring sheltering if the plant status is still GE.
- Recommend that the signage identified in Annex G of the plan be posted to assist in direction, control, and safety of evacuees and EW.
- Replace the portal monitor check source. The date on the source and the exact number of counts for that date was written over with a black pen and smeared. There is no certainty that the date and counts are correct. If the date is actually 2/95, nearly half of the source has decayed. This source may not cause an alarm when placed on the center line of the portal monitor, thus questioning if the portal monitor is working correctly. The source should be replaced so that an accurate reading (alarm) is received when the monitor is correctly response checked by holding the source at various heights (.5 to 5.5 feet) on the center line of the portal monitor.
- Correct the portal monitor procedure to state that the monitor will be source checked. The current procedure for setup of the SAIC portal monitor states that “If a source is available the portal monitor should be source checked. “ Checking with a source is required by FEMA guidance. (See FEMA REP 21, March 1995 “Contamination monitoring standard for a portal monitor used for Radiological Emergency Response”). The procedure should reflect the required source checking of the instrument.
- To conform to the county plan construct ramps for the stairways for elderly and mobility impaired evacuees in the shower/decontamination area.
- DHS should consider posting mockups of the registration form in the registration area entranceway and having staff pass out clipboards with the registration form affixed for evacuees to begin entering data. This will shorten the time that it takes to in-process large numbers of evacuees.
- DHS and the ARC should identify and prominently mark the route of egress that evacuees not requiring sheltering should take to exit the facility.
- EMA should consider how it will monitor the vehicles of evacuees who register and wish to depart the facility.
- The ARC should access the available space in the school complex and prepare large-scale and small scale schematics depicting the planned use of space (e.g., children’s play area; sleeping areas for families, single men and women, elderly; location for ARC “Safe and Well” computers; nurses station, mental health station; reading room; etc.).
- ARC, in conjunction with EMA and DHS should solicit assistance from volunteer and community organizations to sponsor and staff various aspects of the congregate care shelter.

3.2.1 Copiah County Emergency Operations Center

- Other CCEMA staff should be given administrative rights to WebEOC to allow tasks and request to be submitted if the CCEMA Director is unavailable.
- Additional WebEOC training should be revived in order for CCEMA staff to better utilize this tool. This becomes increasingly important when WebEOC is the sole source of situational awareness for the County.
- It was recommended that the County and State coordinate the PAD information with Host Counties in a timely basis.

3.3.1 Warren County Emergency Operations Center

- Review the Warren County Radiological Preparedness Plan to determine the requirements for traffic control points (TCPs) in Warren County to direct and control evacuation traffic as necessary. Ensure training of law enforcement officers to accomplish this mission.
- Review the ability of Warren County to establish and maintain 24-hour staffing of the EOC. During the exercise, only one emergency management person (the EM Director) was available for duty- currently two EM positions (Operations Officer/Planner and Secretary/Receptionist) are vacant. It is doubtful the EM Director could effectively perform her duties after more than 12 hours without rest. No replacement for her was available.
- Review the media releases from the ENMC for information concerning Warren County, and review the content for accuracy and to ensure vital information is included for the public. The EM Director did not know if any information was released regarding the early dismissal of students from the two schools to support activation of the county reception and congregate care centers.
- More aggressively pursue information on State and risk county actions, particularly the PAD, based on the impact it will have on the host counties. For example, PAD status was received by the EM Director through American Red Cross communication channels, not from the MEMA SEOC.

3.3.2 Warren County Reception and Congregate Care

- All EW should receive a common briefing on exposure control and personal dosimetry prior to the issuance of dosimetry.
- Replace the portal monitor check source. Although the portal monitor still responds to the source when placed in the centerline, this 1 uCi source has decayed to about 0.5 uCi or about half its original strength. The manufacturer recommends a 1 uCi source for checking the instrument. The source should be replaced so that an accurate reading (alarm) is received when the monitor is response checked.
- Correct the portal monitor procedure to state that the monitor will be source checked. The current procedure for setup of the SAIC portal monitor states that “If a source is available the portal monitor should be source checked.” Checking with a source is required by FEMA guidance. (See FEMA REP 21, March 1995 “Contamination monitoring standard for a portal monitor used for Radiological Emergency Response”). The procedure should reflect the required source checking of the instrument.
- DHS should consider including in its procedures the requirement for evacuees to pre-fill ARC Shelter Registration forms while waiting in line to be registered.
- The ARC, EMA, DHS and School District should discuss facility requirements to adequately accommodate 1320 evacuees in Warren Central High School. This should include specific designation of rooms for specific purposes, a schematic depicting the complex and location of rooms, a checklist to assist volunteers in the set up and management of this specific shelter.
- MEMA and the county should re-evaluate the hourly reporting requirement currently placed on DHS in Annex F.

3.3.3 Warren County Medical Services Drill

- Recommend increased familiarity and additional practice performing the radiation survey instrument operations check.
- Development of a standard briefing is recommended for the dosimetry issue process to ensure all Emergency Workers (EWs) are provided sufficient guidance on radiation exposure limits and control measures.
- Reiterating the appropriate speed at which to survey with the pancake probe is recommended during future training sessions with response personnel.
- During survey instrument operability checks, the hospital's procedure did not require that the survey instrument respond within a pre-established range of readings when exposed to the radioactive source as required by Exercise Evaluation Criterion 1.e.1. It is recommended that the hospital procedure be revised to include instructions for conducting the radiation survey instrument response check to include an acceptable "range of readings" for instrument response, as required by Exercise Evaluation Criterion 1.e.1 and ANSI N323A-1997 (e.g. +/- 20% of a reference value for the radiation source/survey instrument combination).
- To ensure all hospital responders are appropriately informed of their emergency radiation exposure limit, it is recommended that the 1000 mR administrative radiation exposure limit be prominently posted in the REA area, and included in a verbal briefing when dosimetry is issued.
- When individual conducting monitoring was asked what meter reading indicated that the person was contaminated and required decontamination, she responded that any reading above background was considered contaminated. It was noted by the evaluator that the hospital's procedure is not clear on the action level for decontamination; In Section 6.7.1 the responder is instructed to decontaminate any area of the patient where monitoring indicates contamination above background levels in accordance with Section 6.8. Section 6.8 provides instruction on decontamination methods. This section also indicates that areas and equipment should not be released for unrestricted use until a survey verifies that it has less than 100 cpm above background. It is recommended that consistent decontamination decision criteria be utilized for individuals, areas and equipment. FEMA-REP-22, *Contamination Monitoring Guidance For Portable Instruments Used For Radiological Emergency Response To Nuclear Power Plant Accidents*, recommends a decontamination decision criteria of 300 cpm.
- In order to optimize the Ludlum Model 12 instrument response to radioactive contamination, it is recommended that the practice of using a latex glove be changed to require use of thin plastic (e.g. Saran wrap) or a thin plastic sandwich bag with a density of no more than 1.1 mg/cm². Refer to FEMA-REP-22 and Table 12 of the background document for further information.

APPENDIX 7

FEMA REGION VI – JOINT INFORMATION CENTER

4.2.1.6. Grand Gulf Joint Information Center

Criterion 1.a.1:

The Grand Gulf Nuclear Station (GGNS) Joint Information Center (JIC) successfully demonstrated the use of effective procedures to alert, notify, and mobilize emergency response personnel in a timely manner. The JIC is co-located with the Entergy Corporation Headquarters at 1350 Echelon Parkway, Jackson, Mississippi.

At 0855, an Alert Emergency Classification Level (ECL) was declared by GGNS. Upon subsequent notifications by GGNS and the states of Louisiana and Mississippi, emergency management agencies, JIC staff began arriving at approximately 0900. As JIC staff arrived, they immediately began organizing the facility for operations, checking their supplies and equipment, logging in to computer workstations and reviewing position Standard Operating Procedures (SOPs). Functional areas within the JIC included the Utility/Nuclear Regulatory Commission (NRC) Workroom, the State and Local (S&L) Jurisdiction Workroom, the Inquiry Response Team Workroom, the Media Briefing Room, and the Media Monitoring room.

At 0945, the Entergy Corporation JIC Spokesperson conducted an initial briefing for the S&L workroom staff. During the briefing the JIC staff was reminded to document all significant activities, to follow established procedures and to be alert for errors or inconsistencies. At the conclusion of the briefing the JIC was declared operational at 1000. Key JIC participants included: the Entergy Corporation JIC Spokesperson and support staff, the Louisiana Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) Public Information Officer (PIO), representatives from the Louisiana Department of Environmental Quality (LDEQ), the Mississippi Emergency Management Agency (MEMA) PIO, a representative from the Mississippi State Department of Health/Division of Radiological Health (MSDH/DRH), and PIO's from Claiborne County, Mississippi and Tensas Parish, Louisiana.

All activities described in the demonstration criterion were carried out in accordance with the plan, procedures and extent of play agreement.

Criterion 1.d.1:

The Grand Gulf Nuclear Station (GGNS) Joint Information Center (JIC) successfully demonstrated the availability and use of reliable primary and backup communication systems to support emergency operations. Functional areas within the JIC included the Utility/Nuclear Regulatory Commission (NRC) Workroom, the State and Local (S&L) Jurisdiction Workroom, the Inquiry Response Team Workroom, the Media Briefing Room, and the Media Monitoring room. Primary communications systems in each functional area consisted of commercial telephones.

Twelve telephones, to include four multiline telephones were available in the Utility/NRC Workroom. Backup communications systems consisted of cellular telephones, e-mail, the

Internet based WebEOC system, satellite radio, and facsimile (FAX). Six telephones were available in the S&L Workroom. Backup communications systems consisted of BlackBerry smart phones that provided voice and instant text messaging, laptop computers at each work station with e-mail capabilities and access to State Emergency Operations Center (EOC) Websites, and FAX. Six telephones were in use in the Inquiry Response Team Workroom. Connections were available for additional telephones if necessary. The Inquiry Response Team Coordinator was equipped with a pager and cell phone for backup communication. A media work area adjacent to the Media Briefing Room was equipped with 24 commercial telephone jacks (four telephones were connected). All communications systems were fully operational at the beginning of the exercise and there were no communication failures.

All activities described in the demonstration criterion were carried out in accordance with the plan, procedures and extent of play agreement.

Criterion 1.e.1:

The Grand Gulf Nuclear Station Joint Information Center (JIC) adequately demonstrated sufficient equipment and supplies to support emergency information operations. The JIC is located on the first floor of the Entergy Building at 1350 Echelon Parkway. Ample space, equipment, and supplies enabled JIC representatives to adjourn to their assigned work areas in between media briefings. A large cart containing over thirty telephones and job aid/work packages was at the ready should activation of the JIC be required. A web-based incident management software program, WebEOC, assisted the Technical Advisor (Company Spokesperson) and JIC Team to coordinate current information and activities. There were large digital clocks available throughout the facility and a time synchronization of all equipment was conducted upon the activation of the JIC.

The JIC Team was subdivided into six separate work areas from which to carry out their taskings. The six work areas consisted of:

- Media Work Room (auditorium foyer)
- Briefing Room (auditorium)
- Inquiry Response Room (Room 106)
- State and Local Work Room (Room 103)
- Entergy/NRC Utility Work Room (CEC Room)
- Media Monitoring Room

The Media Work Room was equipped with adequate landline telephones, tables, chairs, and displays to support the mock media as well as a table with all press releases from all agencies involved in the incident. This room was located in the auditorium foyer and had easy access to the exits, restrooms, and café facility.

The Briefing Room was located in the auditorium and had seating for over fifty persons and room for many more. A stage provided an elevated venue from which a panel of experts led by the Company Spokesperson could field questions effectively while remaining visible to all participants. The panel, which consisted of representatives from the EPZ counties and parishes, the Louisiana Governor's Office of Homeland Security and Emergency Preparedness

(GOHSEP), Mississippi Emergency Management Agency (MEMA), the Louisiana Department of Environmental Quality (LDEQ), and Port Gibson/Claiborne County Civil Defense delivered information and responded to media inquiries adequately while seated at a table replete with organization identification placards and microphones. An overhead projector and large screen provided visual aids such as plant schematics, aerial photos, and 10-mile Emergency Preparedness zone maps with individually highlighted zones to further emphasize which areas were affected by the incident. The panelists could exit the stage at the end of each briefing without further media engagement via a side door leading to their secured work areas.

The Inquiry Response room had six tables, twenty chairs, seven operational telephones, a conference phone, a multi-line phone, overhead data projector, large screen, easel with flipchart, and corkboard walls for the Inquiry Response Team staff of seven to carry out their call taking and information management duties. The team members used job aids/work packages containing:

- Badge
- Pens
- Highlighter
- Post-It notes
- Paper
- Emergency Public Information folder
- Emergency Information Center book
- 2009 calendar with public emergency information

Calls were documented on notepads and trends recorded in the web-based software program. Call takers referred to a medium sized EPZ map and the 2009 calendars to help answer the bulk of the calls.

The GOHSEP, LDEQ and parish and county spokespersons worked out of a State, Local and Federal workroom located in Room 103 This work area was equipped with adequate internet connections, tables, chairs and landline telephone lines to support the operation.

The NRC Utility Workroom was located in the CEC Room and was equipped with adequate information technology (IT) and communication equipment to support several Entergy staff members during the exercise. All staff members had internet and email access. The staff members used a web-based incident management software program to track and maintain activity logs. The hotline to the plant is located in this room in addition to ten commercial telephone lines and a satellite telephone.

The Media Monitoring Room contained four wall-mounted flat screen televisions which recorded CNN, CBS, and ABC via four DVR recorders. The radio station 102.9 FM was also monitored and recorded. There was a copier available as well as two FAX machines for incoming and outgoing messages. There was a rack full of technical reference binders and emergency operations plans and a large file cabinet containing plant schematics, EPZ maps, and other reference materials for the benefit of the JIC Team.

Criterion 5.b.1:

The Grand Gulf Nuclear Station (GGNS) Joint Information Center, (JIC) located at 1350 Echelon Parkway, Jackson, Mississippi was declared operational at 1000. The JIC is staffed by the utility and by State and local representatives to provide accurate emergency information and instructions to the public and the news media. Major components include the NRC/Utility Work Room, the Media Monitoring section, the Inquiry Response (IR) section, and the State and Local Work Room. Individuals and agencies represented at the JIC included the GGNS Company Spokesperson (CS) and staff, representatives of the Louisiana Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP), the Louisiana Department of Environmental Quality (LDEQ), and Tensas Parish, as well as the Mississippi Emergency Management Agency, (MEMA) the Mississippi State Department of Health/Division of Radiological Health, (MSDH/DRH) and Port Gibson, Claiborne County Civil Defense. The utility staff at the JIC included the CS, JIC Manager, Information Coordinator, Media Liaison, Technical Advisor, JIC Log Keeper, Logistics Coordinator, Inquiry Response Coordinator, Press Release Writer, and Media Monitoring.

This is a spacious facility with separate rooms for each of the various functions and agencies. The Media Monitoring and the Inquiry Response activities are located in separate rooms adjacent to the NRC/Utility Work Room. A separate work room is provided for State and local representatives. At 0930 the utility controller simulated establishing security procedures for controlling access of the media representatives to prescribed areas of the JIC. The media is restricted from all areas except the large media work room and the auditorium, which has seating for the approximately 50 media representatives, who were present for the media briefings. This room has a raised stage at the front of the room at which representatives of all agencies are available to brief the media and answer questions. At the front of the room a large electronic screen is available for displaying graphics and photographs. The Company Spokesperson utilized this equipment to explain to the media representatives what had transpired at the plant to cause the emergency event.

INQUIRY RESPONSE

The Joint Information Center managed telephone inquiries and documented trends in misinformation and rumors via the Inquiry Response Team (IR). This team was located in Room 106 of the Entergy Building and consisted of an Inquiry Response Coordinator (IRC) and six telephone operators. The IR team was equipped with telephones, workspace, job aids/work packages, and a web-based incident management program to communicate their findings to the rest of the JIC team. Three hundred and fifty-six (356) calls were documented. If a call taker received three or more calls that were similar in detail, a trend was recorded in the web-based "Media Monitoring Log," which was then reviewed by the Company Spokesperson. Rumors identified varied from a spill from a barrel of radioactive material to injury reports. Call takers logged each call and used real time incident information as well as publicly available materials such as emergency information calendars to effectively answer inquiries and mitigate trends in misinformation.

The seven individuals assigned to this function were kept abreast of all pertinent activity by the IRC attending the briefings conducted by the CS and by the projection of current information

developed in the NRC/Utility Work Room onto the screen at the front of the IR room. The CS frequently briefed the IRC and her staff and ensured the posting of changes in the Emergency Classification Level (ECL) and other significant changes and events on a screen at the front of the room. Both the NRC/Utility Work Room and the IR Room have the capability of posting their accomplishments and other activities on computers which are projected onto large screens in both rooms.

The Inquiry Response staff identified the following rumor trends:

- 1) Injuries of workers at the plant, 5 calls;
- 2) Explosion at the plant with deaths and injuries, 4 calls;
- 3) Governor's office reported that they had received 66 calls about trouble at the plant and wanted to know why they had not been informed; this call was referred to the Mississippi Emergency Management Agency;
- 4) Radiation had been released (prior to actual release) 3 calls;
- 5) Rumors that the site had been evacuated and civilians should evacuate, 3 calls;
- 6) From the Mississippian Newspaper - a barrel of radioactive material had been dropped and spilled;

The IRC provided this information to the CS who dispelled these rumors at a subsequent media briefing.

PRESS RELEASES

Public information is only required to be in the English language at this location. Press Releases and messages developed, copied and distributed to the staff at the JIC and to the mock media and participating agencies included:

- 1) Louisiana Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP): Advising that they have activated their Emergency Operations Center and are monitoring the Grand Gulf Nuclear Station situation;
- 2) GOHSEP, advising that the Governor had declared a State of Emergency for Louisiana;
- 3) GOHSEP, advising that Tensas Parish had ordered evacuation and sheltering in place for designated areas;
- 4) MEMA issued 11 News Releases covering the following subjects: a) Emergency Alert System message: Alerting the public of a General Emergency at the Grand Gulf plant and advising the evacuation and sheltering of designated protective action areas; b) News Conference Regarding Grand Gulf; c) Telephone numbers for public inquiries; d) Site Area Emergency declared at Grand Gulf Nuclear Station; e) Recommendations from the Board of Animal Health for Radiological Emergencies; f) Precautionary Transportation of Students; g) Alert System for the General Emergency at Grand Gulf Nuclear Station; h) Traffic Control Point Locations; i) Emergency Alert System activation for General Emergency at Grand Gulf Nuclear Station; and j) Recommendations from the Board of Animal Health for Radiological Emergencies
- 5) Entergy issued four Press Releases, one for each of the Emergency Classification Levels, i.e., Alert, Site Area Emergency, General Emergency, each of which contained a list all of the radio stations in Louisiana and Mississippi, to which individuals should listen for additional

information. In addition, the fourth announced that the event had been downgraded and was now in the recovery phase;

6) GGNS provided the information for the completion of 14 Emergency Notification Forms which provide detailed information on the emergency.

The message center staff copied and distributed all messages and press releases to all appropriate individuals in a timely manner.

MEDIA BRIEFINGS

Media briefings were conducted at 1045, 1145, 1245, and 1345. Each briefing required approximately 15 minutes.

Prior to each of the scheduled briefings the CS conducted internal briefings in the State and local workroom for the team leaders of the various activities and provided updates for the Louisiana and Mississippi contingents. He convened all spokespersons briefly in the hallway behind the stage of the auditorium to establish the speaking order of the panelists and to coordinate what each planned to cover in their briefings. This served to avoid duplications and to insure that all relevant facts were included from the point of view of their agency. All information provided in press releases and during media briefings was current, complete, and accurate.

At each of the media briefings, the CS introduced himself and the agency he represented and asked each agency spokesperson to do the same. The spokespersons representing each agency: Entergy; Technical support; the Mississippi State Department of Health/Division of Radiological Health; Mississippi Emergency Management Agency (MEMA); Port Gibson Claiborne County Civil Defense; the Louisiana Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP); and the Louisiana Department of Environmental Quality (LDEQ); and Tensas Parish Office of Homeland Security and Emergency Preparedness were represented on the stage.

Each spokesperson briefly addressed the media. The Technical Support person utilized a diagram of the plant to explain what had caused the event. The Port Gibson Claiborne County Civil Defense Public Information Officer explained the precautionary evacuation underway in his county. He also provided the Public Information hotline number and the location of the traffic control points being established. The MEMA representative announced the Governor's declaration of a state of emergency. The Tensas Parish representative announced that they were fully staffed at 1000 and advised that all involved populations tune to the Emergency Alert System television and radio stations for timely information, and that they reference their calendars for emergency actions to be taken. The CS dispelled two rumors: one that evacuations had taken place (this was prior to any actual evacuation order), and the other related to the dropping and spilling of a drum of radioactive material.

At this point in the briefing the CS opened the floor for questions. Each media representative was given an opportunity to question the panel on a wide variety of subjects. In no instance did the panel fail to answer the question to the satisfaction of the individual. Information provided was current, accurate and complete. As the incident developed, the representatives described and

explained actions taken by their organization to protect the public and activities related to each Emergency Classification Level. At each briefing the CS addressed and dispelled misinformation and rumors.

The approximately 50 members of the mock media represented both the print and broadcast media. They had been provided a Media Kit containing an emergency calendar, and other information as well as copies of all press releases. Their questions were directed by the CS to the appropriate member of the panel. Answers provided by representatives were accurate and factual, based upon current conditions and activities within the geographic areas of their responsibility. In several instances the spokesperson directed the attention of the media to the emergency information contained in the Media Kits.

MEDIA MONITORING

The Media Monitoring function was located adjacent to the NRC/Utility Work Room. This activity was staffed by one individual. Equipment provided in the Media Monitoring Room enabled monitoring and recording of four television stations simultaneously: CNN (Channel 18), ABC (Channel 10), NBC (Channel 3), and CBS (Channel 12). In addition, he monitored and recorded one local radio station, Jackson, Mississippi radio station WMSI, 102.9 FM.

The drill was terminated at 1406.

In summary, the status of DHS/FEMA criteria for this location is as follows:

- a. MET: 1.a.1, 1.d.1, 1.e.1, 5.b.1
- b. AREAS REQUIRING CORRECTIVE ACTION: None
- c. DEFICIENCY: None
- d. NOT DEMONSTRATED: None
- e. PRIOR ISSUES - RESOLVED: None
- f. PRIOR ISSUES - UNRESOLVED: None