



FINAL EXERCISE REPORT

CALLAWAY NUCLEAR POWER PLANT

Licensee: Ameren Union Electric Company

Exercise Date: September 14, 1999

Report Date: November 2, 1999

Federal Emergency Management Agency

Region VII
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I. EXECUTIVE SUMMARY

On September 14, 1999, an exercise was conducted in the plume exposure pathway emergency planning zone (EPZ) around the Callaway Nuclear Power Plant by the Federal Emergency Management Agency (FEMA), Region VII. In addition on August 16-18, 1999, a medical drill and eight out-of-sequence drills were conducted. The purpose of the exercise and drills was to assess the level of State and local preparedness in responding to a radiological emergency. The exercise and drills were held in accordance with FEMA's policies and guidance concerning the exercise of State and local radiological emergency response plans and procedures.

The previous exercise at this site was conducted on August 12-13, 1997. The qualifying emergency preparedness exercise for final plan approval was conducted on March 21, 1987.

FEMA wishes to acknowledge the efforts of the many individuals who participated in this exercise. In the State of Missouri, the counties of Callaway, Gasconade, Montgomery, and Osage participated along with various organizations of the State government. The efforts of the utility should also be commended for their work on the scenario development and exercise preparation.

Protecting the public health and safety is the full-time job of some of the exercise participants and an additional assigned responsibility for others. Still others have willingly sought this responsibility by volunteering to provide vital emergency services to their communities. Cooperation and teamwork of all the participants was evident during this exercise. However, in the interest of brevity, only inadequacies are discussed in this report.

This report contains the final evaluation of the biennial exercise.

The State and local organizations, except where noted in this report, demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There were no Deficiencies and one Area Requiring Corrective Action (ARCAs) identified as a result of this exercise.

There were nine ARCAs identified during the previous exercise conducted August 12-13, 1997. All were corrected during this exercise.

The final protective action decision (PAD) during the emergency phase was evacuation of a 5-mile radius and the southwest, west, northwest, north, and northeast half of the 10-mile EPZ out to ten miles. The evacuated subzones were C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, and M1. The evacuated area included the towns of Reform, Readsville, Steedman, Mokane, Portland, Calwood, and the city of Fulton. Approximately 16,312 residents and transients were affected by the evacuation.

II. INTRODUCTION

On December 7, 1979, the President directed FEMA to assume 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.

FEMA Rule 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 governments' 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 evaluation of exercises of the plans and procedures conducted by state and local governments.
- * Responding to requests by the U.S. 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 the following federal agencies with responsibilities in the radiological emergency planning process:
 - U.S. Department of Commerce
 - U.S. Nuclear Regulatory Commission
 - U.S. Environmental Protection Agency
 - U.S. Department of Energy
 - U.S. Department of Health and Human Services
 - U.S. Food and Drug Administration
 - U.S. Public Health Service
 - U.S. Department of Transportation
 - U.S. Department of Agriculture
 - U.S. Department of the Interior

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

Formal submission of the RERPs for the Callaway Nuclear Power Plant to the RAC, by the state of Missouri and involved local jurisdictions, was followed by a critique and evaluation of those plans. Formal approval of these plans was granted by FEMA on July 9, 1985. The Alert and Notification System was formally granted approval by FEMA on May 18, 1987.

A REP exercise was evaluated on September 14, 1999, by FEMA Region VII to assess the capabilities of State and local offsite emergency preparedness organizations in implementing their RERPs and procedures to protect the public during a radiological emergency involving the Callaway Nuclear Power Plant. The purpose of this exercise report is to present the exercise results and findings on the performance of the offsite response organizations (OROs) during a simulated radiological emergency.

The findings presented in this report are based on the evaluations of the Federal evaluator team, with final determinations made by the FEMA Region VII RAC Chairperson 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-14, "Radiological Emergency Preparedness Exercise Manual," September 1991.
- * FEMA-REP-15, "Radiological Emergency Preparedness Exercise Evaluation Methodology," September 1991.

Section III of this report, entitled "Exercise Overview," presents basic information and data relevant to the exercise. This section of the report contains a description of the plume EPZ, a listing of all participating jurisdictions and functional entities which were evaluated, and a tabular presentation of the time of actual occurrence of key exercise events and activities. Federal participants were not evaluated.

Section IV of this report, "Exercise Evaluation and Results," presents basic information on the demonstration of applicable exercise objectives at each jurisdiction or functional entity evaluated in a jurisdiction-based, issues only format. This section also contains: (1) descriptions of all Deficiencies and ARCAs assessed during this exercise, recommended corrective actions, and the State and local governments' response and (2) descriptions of ARCAs assessed during previous exercises and the ORO's schedule of corrective actions for each identified exercise issue.

III. EXERCISE OVERVIEW

Contained in this section are data and basic information relevant to the September 14, 1999, exercise to test the offsite emergency response capabilities in the area surrounding the Callaway Nuclear Power Plant. This section of the exercise report includes a description of the plume EPZ, a listing of all participating jurisdictions and functional entities which were evaluated, and a tabular presentation of the time of the actual occurrence of key exercise events and activities.

A. Plume Emergency Planning Zone (EPZ) Information

The Callaway Nuclear Power Plant is located in Callaway County, Missouri, ten miles southeast of Fulton, 25 miles northeast of Jefferson City, and 80 miles west of St. Louis. The site is four and a half miles north of the Missouri River on a plateau 300 feet above river level. It is owned and operated by the Ameren Union Electric Company, St. Louis, Missouri.

The 10-mile EPZ contains a total population of approximately 16,635 within the four risk counties of Callaway, Gasconade, Montgomery, and Osage. The land use within the EPZ is predominantly rural/agricultural. Within the 5-mile radius of the plant, the topography consists of 60% forest, 20% farm/crops, and 20% pasture. Various forms of transportation serve the area. Interstate Highway 70 passes within 12 miles to the north of the site, U.S. Highway 54 passes within 13 miles to the west, and Amtrak passes approximately five miles to the south along the Missouri River.

The EPZ is divided into 15 subareas within the four counties listed above. In addition to Fulton, eleven towns are within the EPZ; Reform, Readsville, Steedman, Mokane, Portland, Deer, Chamois, Calwood, Rhineland, Bluffton, and Morrison.

B. Exercise Participants

Indicated below is a list of organizations which participated in the August 1999 out-of-sequence drills and the September 14, 1999, exercise.

STATE OF MISSOURI

State Emergency Management Agency
Missouri State Highway Patrol
Missouri National Guard/Adjutant General
Department of Health
Division of Family Services
Department of Highway and Transportation
Missouri Nuclear Emergency Team

American Red Cross
KTTY EAS Radio Station
University of Missouri - Columbia
University of Missouri Hospital and Clinics
Missouri School for the Deaf
Fulton Reception Diagnostic Center - State Prison
Fulton State Hospital

RISK JURISDICTIONS

CALLAWAY COUNTY/FULTON

County Board of Commissioners
Emergency Management Coordinator
Mayor of Fulton
County Sheriff
Fulton Police Chief
Transportation Coordinator
Public Safety Communications
Ambulance Coordinator
County Highway, Road and Bridge Department
County Health Department
Public Information Officer
County Division of Family Services
Fire Coordinator
North Callaway R-I School District
Callaway County Jail
Fulton Manor Care Center
Fulton Nursing and Rehab
Riverview Nursing Center
Presbyterian Manor of Fulton

GASCONADE COUNTY

County Emergency Management
County Commissioners
County Sheriff's Department
Fire Coordinator
Ambulance Coordinator
County Health Officer
Transportation Coordinator
County Road and Bridge Department
Public Information Officer
Gasconade R-1 Public Schools

MONTGOMERY COUNTY

County Emergency Management
County Commissioners
County Sheriff and Dispatchers
Montgomery City Fire Department
County Health Department
Transportation Coordinator
Ambulance Coordinator
Public Information Officer
County Road and Bridge
Montgomery R-2 Schools

OSAGE COUNTY

County Emergency Management
County Commissioners
County Sheriff's Department
Public Information Officer
Fire Coordinator
Ambulance Coordinator
County Health Department
County Road and Bridge

C. Exercise Timeline

Table 1, on the following pages, presents the time at which key exercise events and activities occurred during the Callaway Nuclear Power Plant exercise held on September 14, 1999. Also included are times that notifications were made to the participating jurisdictions/ functional entities.

TABLE 1. EXERCISE TIMELINE

DATE AND SITE: September 14, 1999, Callaway Nuclear Power Plant

Emergency Classification Level or Event	Time Utility Declared	Time That Notification Was Received or Action Was Taken											
		Missouri EOC ^A	Dose/Asmt FTC	JPIC	FCP/ EOF			Callaway Cty/Fulton EOC ^{DA}	Gasconade County EOC ^{DA}	Montgomery County EOC ^{DA}	Osage County EOC ^{DA}		
Unusual Event	0725	0731	0726	N/A	0726			0731	0740	0731	0731		
Alert	0759	0809	0802	0804	0802			0804	0806	0804	0804		
Site Area Emergency	0842	0849	0844	0853	0844			0850	0849	0849	0850		
General Emergency	0938	0947	0941	0948	0941			0947	0949	0949	0949		
Rad. Release Started	0945	1005	0945	1006	0945			1005	1005	1005	1005		
Rad. Release Terminated	N/A	N/A	N/A	N/A	N/A			N/A	N/A	N/A	N/A		
Facility Declared Operational		0821	0932	0900	0900			0815	0835	0830	0835		
Exercise Terminated		1305	1321	1310	1321			1303	1305	1302	1305		
KI Recommendation		1035	1026	N/A	1035			1037	1036	1036	1036		
1st Protective Action Decision: - Initial SAE Notification		N/A	N/A	N/A	N/A			0859	0859	0853	0900		
1st Siren Activation		N/A	N/A	N/A	N/A			0904	0902	0905	0905		
1st EAS Message		0904	N/A	N/A	N/A			N/A	N/A	N/A	N/A		
2nd Protective Action Decision: Evacuate Subareas: C1, C2, C3, & C6		N/A	N/A	N/A	N/A			0955	N/A	N/A	N/A		
2nd Siren Activation		N/A	N/A	N/A	N/A			1012	1012	1012	1012		
2 nd EAS Message		1014	N/A	N/A	N/A			N/A	N/A	N/A	N/A		

	Missouri EOC	Dose/Asmt FTC	JPICr	FCP/ EOF			Callaway Cty/Fulton EOC	Gasconade County EOC	Montgomery County EOC	Osage County EOC		
3 rd Protective Action Decision: Evacuate Subarea: C8, C9 & Fulton Public Schools	N/A	N/A	N/A	N/A			1039	N/A	N/A	N/A		
3 rd Siren Activation	N/A	N/A	N/A	N/A			1100	N/A	N/A	N/A		
3 rd EAS Message:	1108	N/A	N/A	N/A			N/A	N/A	N/A	N/A		
4 th Protective Action Decision: Evacuate Subareas: C4, C5, C7, C10, & C11	N/A	N/A	N/A	N/A			1111	N/A	N/A	N/A		
4 th Siren Activation	N/A	N/A	N/A	N/A			1149	N/A	N/A	N/A		
4 th EAS Message	1149	N/A	N/A	N/A			N/A	N/A	N/A	N/A		
5 TH Protective Action Decision Evacuate Subarea: M1	N/A	N/A	N/A	N/A			1226	N/A	N/A	N/A		
5 TH Siren Activation	N/A	N/A	N/A	N/A			1247	N/A	N/A	N/A		
5 TH EAS Message	1247	N/A	N/A	N/A			N/A	N/A	N/A	N/A		

IV. EXERCISE EVALUATION AND RESULTS

Contained in this section are the results and findings of evaluation of all jurisdiction and functional entities that participated in the August 1999 out-of-sequence drills and the September 14, 1999, exercise to test the offsite emergency response capabilities of State and local governments in the 10-mile EPZ surrounding the Callaway Nuclear Power Plant.

Each jurisdiction and functional entity was evaluated on the basis of its demonstration of criteria contained in exercise objectives delineated in FEMA-REP-14, REP Exercise Manual, September 1991. Detailed information on the exercise objectives and the extent-of-play agreement for this exercise is found in Appendix 3 of this report.

A. Summary Results of Exercise Evaluation

The matrix presented in Table 2, on the following page, presents the status of all exercise objectives from FEMA-REP-14 which were scheduled for demonstration during this exercise, at all participating jurisdictions and functional entities. Exercise objectives are listed by number and the demonstration status of those objectives 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 - Area(s) Requiring Corrective Action (ARCA) assessed or unresolved ARCA(s) from prior exercise(s)
- N - Not Demonstrated (Reason explained in subsection B)

TABLE 2. SUMMARY RESULTS OF EXERCISE EVALUATION

DATE AND SITE: AUGUST 16-18 & SEPTEMBER 13-14, 1999, CALLAWAY NUCLEAR POWER PLANT

JURISDICTION/LOCATION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
MISSOURI STATE OPERATIONS																															
State Emergency Operations Center	M	M	M	M						M	M						M							M							
Forward Command Post/EOF	M	M	M	M	M				M					M																	
Dose Assessment/Field Team Coordination	M	M		M	M		M		M					M																	
Radiological Field Monitoring Teams	M			M	M	M		M						M																	
Joint Public Information Center	M	M		M									M	M																	
Missouri School for the Deaf				M													M														
Fulton Diagnostic Center					M									M	M															M	
Hearnes Reception Center	M			M	M	M													A	M			M							M	
Jason Gym Reception Center					M																										
Fulton State Hospital					M									M	M															M	
University of Missouri Medical Center					M																									M	
University of Missouri Ambulance					M									M																M	
MISSOURI COUNTY OPERATIONS																															
Callaway/Fulton Emergency Operations Center	M	M	M	M	M					M	M	M					M	M	M	M											
Callaway County Corrections Center					M																										M
North Callaway R-I Schools					M	M											M		M												
Fulton Manor Care Center					M												M	M													M
Fulton Nursing and Rehab					M												M	M													M
Riverview Nursing Center					M												M	M													M
Presbyterian Manor of Fulton					M												M	M													M

LEGEND:

M = Met (No Deficiency or ARCA(s) assessed)
D = Deficiency(ies) assessed

A = ARCA(s) assessed (Not affecting health and safety of public)

N = Not Demonstrated as scheduled (Reason explained in Section IV.)

Blank = Not Scheduled For Demonstration

B. Status of Jurisdictions Evaluated

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

Met - Listing of the demonstrated exercise objectives, under which no Deficiencies or ARCAs were assessed during this exercise and under which no ARCAs assessed during a prior exercise remain unresolved.

Deficiency - Listing of the demonstrated exercise objectives under which one or more Deficiencies, were assessed during this exercise. Included is a description of each Deficiency and recommended remedial actions.

Area Requiring Corrective Actions (ARCA) - Listing of the exercise objectives under which one or more ARCAs were assessed during the current exercise. Included is a description of ARCA(s) assessed during this exercise and the recommended corrective action(s) to be demonstrated before or during the next biennial exercise.

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

Prior Issues - Resolved - Description of ARCAs assessed during previous exercises which were resolved in this exercise and the corrective actions demonstrated.

Prior Issues - Unresolved - Description of ARCAs assessed during prior exercises which were not resolved in this exercise. Included is the reason the ARCAs remain 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 are 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 Area Requiring Corrective Action (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."

FEMA has developed a standardized system for numbering exercise issues (Deficiencies and ARCAs). This system is used to achieve consistency in numbering exercise issues between FEMA Regions and site-specific exercise reports within each Region. It is also used to expedite tracking of exercise issues on a nationwide basis.

The identifying number for Deficiencies and ARCAs includes the following elements, with each element separated by a hyphen (-).

- * **Plant Site Identifier** - A two-digit number corresponding to the Utility Billable Plant Site Codes.
- * **Exercise Year** - The last two digits of the year the exercise was conducted.
- * **Objective Number** - A two-digit number corresponding to the objective numbers in FEMA-REP-14.
- * **Issue Classification Identifier** - (D = Deficiency, A = ARCA). Only Deficiencies and ARCAs are included in exercise reports.
- * **Exercise Issue Identification Number** - A separate two (or three) digit indexing number assigned to each issue identified in the exercise.

1. STATE OF MISSOURI

1.1 State Emergency Operations Center and KTXY FM Radio.

The State Emergency Operations Center (SEOC) is located in the Ike Skelton Training Center in Jefferson City, Missouri. The Emergency Alert System (EAS) radio station, KTXY, is located in Columbia, Missouri.

- a. **MET:** Objectives 1, 2, 3, 4, 10, 11, 17, and 23
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ARCAs – RESOLVED: Objectives 3 and 17**

Issue No.: 10-97-03-A-01

Description: Several protective action recommendations and significant events were not coordinated with or communicated to the plume and ingestion pathway counties. The state did not make the counties aware of critical information affecting their counties that was provided to the public. Some of the specific concerns identified were:

- The State did not inform the four risk counties of the 20 mile area affected by a ban on the use and marketing of milk, fruits, vegetables, field crops, and other locally grown produce in a timely manner. The counties were not provided this information until day 2 of the exercise even though this recommendation was made at 10:15 a.m. on day 1.
- The State did not coordinate traffic and access control points with any of the risk counties on day 1 of the exercise.
- The State did not coordinate with the counties the establishment of access control points for re-entry into restricted areas.
- The State did not provide copies of news releases to the counties in a timely manner. In most cases, the counties did not receive copies of the news releases until day 2 of the exercise. (NUREG-0654, A.1.d., A.2.a.,b.)

Corrective Action Demonstrated: The State coordinated all protective action recommendations, including embargoes on food and agricultural products, with the four risk counties in a timely manner. In addition, the State notified the counties of the access control points established by the State patrol for U.S. Highway 54. Finally, the State provided copies of all news releases to the counties in a timely manner.

Issue No.: 10-97-17-A-02

Description: The State EOC established access control points in support of the four risk counties. Seven of those locations were erroneously established within evacuated subareas. The seven State Patrol troopers at those locations were never instructed by the State EOC to move to locations outside of the evacuated subareas. This could have resulted in unwarranted exposure to these individuals. It should be noted that adequate and complete access control was provided except as indicated in the Osage County section of this report. (NUREG-0654, J.10.g.,j.) The affected access control locations were:

- Route CC at State Highway 94
- Route C at Route AD

- Route D at Route O
- State Highway 94 at Route D
- State Highway 89 at State Highway 100
- State Highway 100 at Route Z
- Route 89 at Route FF

Corrective Action Demonstrated: The State established two access control points on U.S. Highway 54. No other assistance for access control was requested by any of the counties. All changes in protective actions were provided to the two State Patrol troopers staffing access control points, to ensure they remained safely outside the affected areas.

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

1.2 Forward Command Post/EOF.

This function is located in the utility Emergency Operations Facility (EOF), approximately one mile West of the Callaway Nuclear Power Plant.

- a. **MET: Objectives 1, 2, 3, 4, 5, 9, and 14**
- b. **DEFICIENCY: NONE**
- c. **AREA REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES - RESOLVED: NONE**
- f. **PRIOR ISSUES - UNRESOLVED: NONE**

1.3 Dose Assessment and Field Team Coordination.

These functions are located in the utility Emergency Operations Facility (EOF) approximately one mile West of the Callaway Nuclear Power Plant.

- a. **MET: Objectives 1, 2, 4, 5, 7, 9, and 14**
- b. **DEFICIENCY: NONE**
- c. **AREA REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES - RESOLVED: NONE**

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

1.4 Radiological Field Monitoring Teams.

This function is dispatched from the Department of Health offices in Jefferson City, Missouri.

- a. **MET: Objectives 1, 4, 5, 6, 8, and 14**
- b. **DEFICIENCY: NONE**
- c. **AREA REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES - RESOLVED: NONE**
- f. **PRIOR ISSUES - UNRESOLVED: NONE**

1.5 Joint Public Information Center.

This facility is located within the State EOC in Jefferson City, Missouri.

- a. **MET: Objectives 1, 2, 4, 12, and 13**
- b. **DEFICIENCY: NONE**
- c. **AREA REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES - RESOLVED: NONE**
- f. **PRIOR ISSUES - UNRESOLVED: NONE**

1.6 Hearnese Reception and Care Center.

This facility is located on the campus of the University of Missouri in Columbia, Missouri.

- a. **MET: Objectives 1, 3, 4, 5, 19, 22, and 30**
- b. **DEFICIENCY: NONE**
- c. **AREA REQUIRING CORRECTIVE ACTION: Objective 18**

Issue No.: 10-99-18-A-01

Description: Evacuees were not marshalled through the portal monitor in a timely manner. Six evacuees were consecutively monitored, by use of the portal monitor, in 201 seconds. The portal monitor operator individually briefed each evacuee on what to expect and how to stand in the portal monitor. The demonstrated average monitoring time was 33.5 seconds per evacuee, which exceeded the 15 second monitoring time indicated by the plan. This would have resulted in all of the evacuees to be received at this center not being monitored within the 12-hour requirement. (NUREG-0654, J.12.)

Recommendation: Revise procedures to assign a Facilitator or Line Marshal to a location in front of the portal monitor. This individual should be responsible for keeping the evacuees moving through the portal monitor. Consider completing the body map survey form at the decontamination area initial monitoring station where there is no time constraint regarding monitoring.

Corrective Action Demonstrated: This ARCA was identified during the out-of-sequence drill on August 18, 1999. A plan change, requiring evacuees to receive instructions prior to arriving at the portal monitor, was submitted and approved by FEMA Region 7 and has been distributed to all plan holders. This issue is closed.

- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES - RESOLVED: NONE**
- f. **PRIOR ISSUES - UNRESOLVED: NONE**

1.7 Jason Gym and Soldiers Hall Reception and Care Center.

This facility is located on the campus of Lincoln University, Jefferson City, Missouri. For this evaluation, demonstration was conducted at the Hearnes Reception and Care Center only to the extent of correcting a previous ARCA.

- a. **MET: NONE**
- b. **DEFICIENCY: NONE**
- c. **AREA REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES - RESOLVED: Objective 5**

Issue No.: 10-97-05-A-03

Description: TLDs were not issued to the vehicle monitoring station recorders, decontamination area recorders, or decontamination area support staff who may

have reason to come in contact with contaminated evacuees. The Jason Gym and Soldiers Hall Reception and Care Center plan indicates on page 9.2, paragraph 3, that assigned radiological personnel are to be issued a TLD. Failure to provide these individuals with TLDs would result in no legal record of radiation exposure received. (NUREG-0654, H.10., K.3.a.)

Corrective Action Demonstrated: TLDs were issued to all emergency workers in the vehicle monitoring area.

f. PRIOR ISSUES - UNRESOLVED: NONE

1.8 Missouri School for the Deaf.

The school is a state school providing educational services to young people with severe hearing impairments from throughout the State of Missouri. The facility is located in Fulton, Missouri. The school has an enrollment of 140 students with 200 faculty and staff members.

- a. **MET:** Objectives 4 and 16
- b. **DEFICIENCY:** NONE
- c. **AREA REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ISSUES - RESOLVED:** NONE
- f. **PRIOR ISSUES - UNRESOLVED:** NONE

1.9 Fulton Reception and Diagnostic Center.

This facility is a correctional institution located in Fulton, Missouri. The facility houses, in 15 buildings, approximately 1,700 inmates with a staff of 370.

- a. **MET:** Objectives 5, 14, 15, and 30
- b. **DEFICIENCY:** NONE
- c. **AREA REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ISSUES - RESOLVED:** NONE
- f. **PRIOR ISSUES - UNRESOLVED:** NONE

1.10 Fulton State Hospital

This facility is a psychiatric facility located in Fulton, Missouri. The facility houses, in 30 buildings, 508 patients and a staff of 1,300.

- a. **MET: Objectives 5, 14, 15, and 30**
- b. **DEFICIENCY: NONE**
- c. **AREA REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES - RESOLVED: NONE**
- f. **PRIOR ISSUES - UNRESOLVED: NONE**

1.11 University of Missouri Medical Center

This facility is located on the campus of the University of Missouri in Columbia, Missouri.

- a. **MET: Objectives 5 and 21**
- b. **DEFICIENCY: NONE**
- c. **AREA REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES - RESOLVED: NONE**
- f. **PRIOR ISSUES - UNRESOLVED: NONE**

1.12 University of Missouri Ambulances

This facility is located on the campus of the University of Missouri in Columbia, Missouri.

- a. **MET: Objectives 5, 14, and 20**
- b. **DEFICIENCY: NONE**
- c. **AREA REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**

- e. **PRIOR ISSUES - RESOLVED: NONE**
- f. **PRIOR ISSUES - UNRESOLVED: NONE**

2. RISK JURISDICTIONS

2.1 CALLAWAY COUNTY/FULTON

2.1.1 Callaway County/Fulton Emergency Operations Center

This facility is located in the Callaway County Law Enforcement Center, Fulton, Missouri.

- a. **MET: Objectives 1, 2, 3, 4, 5, 9, 10, 11, 14, 15, 16, and 17**
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES - RESOLVED:**

Issue No.: 10-97-05-A-04

Description: The County Health Supervisor failed to issue TLDs to all EOC staff. Two message clerks did not report to the Health Supervisor as instructed to pick up their TLDs. The Supervisor did not insure that all staff had been issued the required TLD. Failure to provide these individuals with TLDs would result in no legal record of radiation exposure received. (NUREG-0654, H.10., K.3.a.)

Corrective Action Demonstrated: The county Health Supervisor and the Emergency Management Director ensured all EOC staff had received their TLDs.

Issue No.: 10-97-15-A-05

Description: There was not a list of transportation dependent or handicapped individuals requiring assistance available in the County EOC. This list is to be maintained by the County Emergency Management Director pursuant to the county plan, page I-1-1, paragraph I.A.2. Although the Transportation Officer simulated for exercise purposes making contact with these individuals, he was unaware of who should be contacted. Failure to contact these individuals could have resulted in their not being evacuated from the affected areas. Although these individuals were not personally contacted pursuant to the plan, an EAS message

was broadcast with a telephone number to call if assistance was required.
(NUREG-0654, J.10.c.d.).

Corrective Action Demonstrated: Both the Transportation Director and the Emergency Management Director had a listing of transportation dependent and handicapped individuals.

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

2.1.2 North Callaway R-1 Schools

The school district is located outside of the EPZ for the Callaway Nuclear Power Plant. The school district consists of four schools with a total population of 1,115 students from preschool through grade 12 with 150 faculty and staff members. However, only approximately 120 students live within the EPZ.

- a. **MET: Objectives 4, 5, 14, and 16**
- b. **DEFICIENCY: NONE**
- c. **AREA REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES - RESOLVED: NONE**
- f. **PRIOR ISSUES - UNRESOLVED: NONE**

2.1.3 Callaway County Corrections Center

The facility is located at the Callaway County Law Enforcement Center.

- a. **MET: Objectives 5, 14, 15, and 30**
- b. **DEFICIENCY: NONE**
- c. **AREA REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES - RESOLVED: NONE**
- f. **PRIOR ISSUES - UNRESOLVED: NONE**

2.1.4 Fulton Manor Care Center

This facility is located within the city limits of Fulton, Missouri.

- a. **MET: Objectives 5, 14, 15, and 30**
- b. **DEFICIENCY: NONE**
- c. **AREA REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES - RESOLVED: NONE**
- f. **PRIOR ISSUES - UNRESOLVED: NONE**

2.1.5 Fulton Nursing and Rehab

This facility is located within the city limits of Fulton, Missouri.

- a. **MET: Objectives 5, 14, 15, and 30**
- b. **DEFICIENCY: NONE**
- c. **AREA REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES - RESOLVED: NONE**
- f. **PRIOR ISSUES - UNRESOLVED: NONE**

2.1.6 Presbyterian Manor at Fulton

This facility is located within the city limits of Fulton, Missouri.

- a. **MET: Objectives 5, 14, 15, and 30**
- b. **DEFICIENCY: NONE**
- c. **AREA REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**

- e. **PRIOR ISSUES - RESOLVED: NONE**
- f. **PRIOR ISSUES - UNRESOLVED: NONE**

2.1.7 Riverview Nursing Home

This facility is located within the city limits of Mokane, Missouri.

- a. **MET: Objectives 5, 14, 15, and 30**
- b. **DEFICIENCY: NONE**
- c. **AREA REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES - RESOLVED: NONE**
- f. **PRIOR ISSUES - UNRESOLVED: NONE**

2.2. OSAGE COUNTY.

2.2.1 Osage County Emergency Operations Center.

This facility is located in the Osage County Courthouse in Linn, Missouri.

- a. **MET: Objectives 1, 2, 3, 4, 5, 9, 10, 11, 14, 15, 16, and 17**
- b. **DEFICIENCY: NONE**
- c. **AREA REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES - RESOLVED: Objective 5**

Issue No.: 10-97-05-A-06

Description: An interview conducted with two emergency workers from the Sheriff's Department revealed these individuals were not knowledgeable of the emergency worker exposure limits. (NUREG-0654, K.3.b.,4.)

Corrective Action Demonstrated: Traffic and access control personnel from the Sheriff's Department were interviewed and described what to do with a TLD, DRD, KI, and dose record forms. The deputies correctly described the State administrative exposure limit of 1R and what to do if that limit was reached.

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

3. RISK/HOST JURISDICTIONS

3.1. GASCONADE COUNTY.

3.1.1 Gasconade County Emergency Operations Center.

This facility is located in the Gasconade County Courthouse in Hermann, Missouri, which is outside the 10-mile emergency planning zone.

- a. **MET: Objectives 1, 2, 3, 4, 5, 9, 10, 11, 14, 15, 16, and 17**
- b. **DEFICIENCY: NONE**
- c. **AREA REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES - RESOLVED: NONE**
- f. **PRIOR ISSUES - UNRESOLVED: NONE**

3.1.2 Hermann Senior High School Reception and Care Center

This facility is located in the Hermann Senior High School in Hermann, Missouri. For this evaluation, demonstration was conducted at the Hearnnes Reception and Care Center only to the extent of correcting a previous ARCA.

- a. **MET: NONE**
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES - RESOLVED: Objectives 18 and 22**

Issue No.: 10-97-18-A-07

Description: One of the two initial evacuee monitors failed to maintain the monitoring distance specified in the plan of 1/2 inch. This could have resulted in contamination not being discovered on an evacuee. (NUREG-0654, J.12.)

Corrective Action Demonstrated: Appropriate monitoring speed and distance was demonstrated.

Issue No.: 10-97-22-A-08

Description: Due to the inadequacy identified for Issue No. 10-97-18-A-07 above, this objective was not adequately demonstrated as it would also apply to the monitoring of emergency workers. NUREG-0654, J.12.)

Corrective Action Demonstrated: Appropriate monitoring speed and distance was demonstrated.

f. PRIOR ISSUES - UNRESOLVED: NONE

3.1.3 Gasconade R-1 Public Schools

The school district is located outside of the EPZ for the Callaway Nuclear Power Plant. The school district consists of four schools with a total population of 1,242 students from preschool through grade 12 with 159 faculty and staff members. However, only approximately 149 students live within the EPZ.

- a. MET: Objectives 4 and 16**
- b. DEFICIENCY: NONE**
- c. AREA REQUIRING CORRECTIVE ACTION: NONE**
- d. NOT DEMONSTRATED: NONE**
- e. PRIOR ISSUES - RESOLVED: NONE**
- f. PRIOR ISSUES - UNRESOLVED: NONE**

3.2. MONTGOMERY COUNTY.

3.2.1 Montgomery County Emergency Operations Center.

This facility is located in the Montgomery County Courthouse in Montgomery City, Missouri.

- a. **MET:** Objectives 1, 2, 3, 4, 5, 9, 10, 11, 14, 15, 16, and 17
- b. **DEFICIENCY:** NONE
- c. **AREA REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ISSUES - RESOLVED:** Objective 5

Issue No.: 10-97-05-A-09

Description: Two traffic and access control personnel interviewed failed to demonstrate the basic knowledge of dosimetry and turn back exposure limits. In addition, these individuals indicated they had not received dosimetry training for approximately two years. (NUREG-0654, K.3., 4.)

Corrective Action Demonstrated: Two traffic and access control personnel adequately demonstrated their knowledge of dosimetry and turn-back exposure limits through an interview process. Further, they verified that they had attended at least two training sessions within the past year.

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

3.2.2 Montgomery R-2 Public Schools

The school district is located outside of the EPZ for the Callaway Nuclear Power Plant. The school district consists of five schools with a total population of 1,465 students from preschool through grade 12 with 180 faculty and staff members. However, only approximately 15 students live within the EPZ.

- a. **MET:** Objectives 4 and 16
- b. **DEFICIENCY:** NONE
- c. **AREA REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ISSUES - RESOLVED:** NONE
- f. **PRIOR ISSUES - UNRESOLVED:** NONE

Appendix 1 - Acronyms and Abbreviations

ANL	Argonne National Laboratory
ARC	American Red Cross
ARCA	Area Requiring Corrective Action
CFR	Code of Federal Regulations
DRD	Direct Reading Dosimeter(s)
EAS	Emergency Alert System
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPA	U.S. Environmental Protection Agency
EPZ	Emergency Planning Zone
FCP	Forward Command Post
FEMA	Federal Emergency Management Agency
FEMA-REP-14	FEMA Radiological Emergency Preparedness Exercise Manual
FEMA-REP-15	FEMA Radiological Emergency Preparedness Exercise Evaluation Methodology
FTC	Field Team Coordinator
INEEL	Idaho National Engineering and Environmental Laboratory
JPIC	Joint Public Information Center
KI	Potassium Iodide
MoNET	Missouri Nuclear Emergency Team
MoNG	Missouri National Guard
mR	Milliroentgen

NRC	U.S. Nuclear Regulatory Commission
NUREG-0654	Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants (NUREG-0654/FEMA-REP-1, Rev. 1).
ORO	Offsite Response Organization(s)
PAD	Protective Action Decision
PAR	Protective Action Recommendation
PIO	Public Information Officer
R	Roentgen
R&CC	Reception & Care Center
RAC	Regional Assistance Committee
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
TL	Team Leader
TLD	Thermoluminescent Dosimeter
USDA	U.S. Department of Agriculture

Appendix 2 - Exercise Evaluators and Team Leaders

Ten federal agency personnel and nine FEMA contract staff evaluated the offsite emergency response functions for the Callaway Nuclear Power Plant exercise on September 14, 1999 and out-of sequence drills in August 1999. Evaluator Team Leaders are indicated by the letters "(TL)" after their names. The organization which each evaluator represents is indicated by the following abbreviations:

ANL	Argonne National Laboratory
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
INEEL	Idaho National Engineering & Environmental Laboratory
USDA	U.S. Department of Agriculture

* Indicates locations evaluated out-of-sequence during this exercise.

EVALUATION SITE	EVALUATOR	ORGANIZATION
State Emergency Operations Ctr & KTXV Radio Station	Norm Valentine - TL Bob Conley Sue Ann Curtis Sandra Bailey	FEMA USDA ANL ANL
Forward Command Post/EOF	Jerry Jacobson	ANL
Dose Assessment/Field Team Coord.	Brad Salmonson	INEEL
Radiological Field Monitoring Teams	Steve Chambers Greg Horton	EPA INEEL
Joint Public Information Center	Tom Baldwin	ANL
Missouri School for the Deaf*	Joe Schulte	FEMA
Hearnes Reception & Care Center & Hermann & Jason Gym/Reception Centers ARCA Corrections*	Brad Salmonson - TL Jim Colson Tonya Leibold Joe Schulte	INEEL INEEL FEMA FEMA
Fulton Reception Diagnostic Center - State Prison*	Joe Schulte	FEMA
University of Missouri Hospital & Clinics/ Ambulance*	Steve Chambers Norm Valentine	EPA FEMA
Fulton State Hospital*	Jane Young	FEMA
Callaway County/Fulton Emergency Operations Center	Connie Wisniewski - TL Rebecca Thompson	FEMA ANL
Callaway County Jail*	Joe Schulte	FEMA
North Callaway R-1 School District*	Connie Wisniewski	FEMA
Fulton Manor Care Center, Fulton Nursing & Rehab; Riverview Nursing Center, & Presbyterian Manor of Fulton	Jane Young	FEMA
Gasconade County Emergency Operations Center	Jane Young - TL Don Newsom	FEMA ANL
Gasconade R-1 Public Schools*	Tonya Leibold	FEMA
Montgomery County Emergency Operations Center	Tonya Leibold - TL Joe Chandler	FEMA FEMA
Montgomery R-2 Schools*	Tonya Leibold	FEMA
Osage County Emergency Operations Center	Jim Donley - TL Kathy Dodd	FEMA FEMA

Appendix 3 - Exercise Objectives and Extent of Play Agreement

This appendix lists the exercise objectives which were scheduled for demonstration during the Callaway Nuclear Power Plant exercise on September 14, 1999 and the out-of-sequence drills on August 16-18, 1999. The Missouri State Emergency Management Agency submitted offsite objectives for this exercise during the Extent of Play Meeting on January 13, 1999, which were subsequently approved by FEMA Region VII in the Extent of Play Letter on March 22, 1999.

The exercise objectives, contained in FEMA-REP-15, "Radiological Emergency Preparedness Exercise Evaluation Methodology," September 1991, represent a functional translation of the planning standards and evaluation criteria of NUREG-0654/FEMA-REP-1, Rev. 1, "Criteria for the Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980.

Because the exercise objectives are intended for use at all nuclear power plant sites and because of variations among offsite plans and procedures, extent-of-play agreements dated March 22, 1999 and April 21, 1999, were prepared by FEMA Region VII and provided to the State of Missouri for further clarification of expected demonstration of the objectives.

Listed below are the specific REP objectives scheduled for demonstration during this exercise and the extent of play agreement, if applicable.

OBJECTIVE 1: MOBILIZATION OF EMERGENCY PERSONNEL

Demonstrate the capability to alert and fully mobilize personnel for both emergency facilities and field operations and to activate and staff emergency facilities for emergency operations.

Expected Demonstration: All telephone calls to mobilize personnel or place them on standby must be actually made. Prepositioning of staff is not authorized, except by written approval from this office prior to the exercise. Your request must include which staff positions will be prepositioned and which facility(ies) will be affected. Double staffing for training purposes will be allowed. However, only the primary individual can participate during the exercise. Double-staffed individuals in training may only observe.

The demonstrations at the Special Facilities will occur out of sequence and all personnel at these facilities may be prepositioned. The issuance of radiological instrumentation and operability checks, where applicable, must not be accomplished prior to evaluator arrival.

Current rosters must be presented identifying the individuals who will maintain around the clock operation at all evaluated facilities.

OBJECTIVE 2: FACILITIES - EQUIPMENT, DISPLAYS, AND WORK ENVIRONMENT

Demonstrate the adequacy of facilities, equipment, displays, and other materials to support emergency operations.

Expected Demonstration: All facilities must be fully set up as they would be to support an actual emergency. This would include the availability of operational telephones and other equipment as required for response to an emergency.

OBJECTIVE 3: DIRECTION AND CONTROL

Demonstrate the capability to direct and control emergency operations.

OBJECTIVE 4: COMMUNICATIONS

Demonstrate the capability to communicate with all appropriate emergency personnel at facilities and in the field.

Expected Demonstration: We will expect demonstration of the primary and all backup communication links identified in the plans for full demonstration of this objective. This must be demonstrated at all facilities evaluated. All evaluated facilities and field teams are required to demonstrate the capability to access at least one communication system that is independent of the commercial telephone system. We will request copies of all messages and logs of message traffic.

OBJECTIVE 5: EMERGENCY WORKER EXPOSURE CONTROL

Demonstrate the capability to continuously monitor and control radiation exposure to emergency workers.

Expected Demonstration: Emergency workers must wear appropriate direct-reading and permanent record dosimetry and have access to a dosimetry charger in accordance with the current state and local plans and procedures. In addition, they must be able to demonstrate basic knowledge of dosimetry, radiation exposure limits, and turn back exposure limits through an interview process. Procedures to monitor and record dosimeter readings and to manage radiological exposure control must be demonstrated.

Successful demonstration of this objective at the Callaway County/Fulton, Montgomery, and Osage County Emergency Operations Centers will close the ARCAs identified during the August 1997 exercise. In addition, successful demonstration of this objective by cadre personnel at the Hearn's Reception Center will close the ARCA identified at the Jason Gym Reception Center during the August 1997 exercise.

OBJECTIVE 6: FIELD RADIOLOGICAL MONITORING - AMBIENT RADIATION MONITORING

Demonstrate the appropriate use of equipment and procedures for determining field radiation measurements.

Expected Demonstration: Each of the deployed field monitoring teams must take radiation measurements at a minimum of six locations to identify the plume. A demonstration of an operational check of the instruments utilizing a check source is required. Information on the proper reading or range of readings should be attached to or accompany each instrument. Radiological detection instruments, equipment, and protective clothing, as annotated in Annex A, Department of Health Standard Operating Procedure of the Missouri Nuclear Accident Plan, should be available for demonstration.

OBJECTIVE 7: PLUME DOSE PROJECTION

Demonstrate the capability to develop dose projections and protective action recommendations regarding evacuation and sheltering.

OBJECTIVE 8: FIELD RADIOLOGICAL MONITORING - AIRBORNE RADIOIODINE AND PARTICULATE ACTIVITY MONITORING

Demonstrate the appropriate use of equipment and procedures for the measurement of airborne radioiodine concentrations as low as 10^{-7} (0.0000001) microcuries per cubic centimeter in the presence of noble gases and obtain samples of particulate activity in the airborne plume.

OBJECTIVE 9: PLUME PROTECTIVE ACTION DECISION MAKING

Demonstrate the capability to make timely and appropriate protective action decisions (PAD).

OBJECTIVE 10: ALERT AND NOTIFICATION

Demonstrate the capability to promptly alert and notify the public within the 10-mile plume pathway emergency planning zone and disseminate instructional messages to the public on the basis of decisions by appropriate State or local officials.

Expected Demonstration: The 15-minute clock will begin when the offsite authorities make the decision to notify the public of a Site Area Emergency. When that occurs, the offsite organization will have 15 minutes to activate the alert system and disseminate an initial Emergency Alert System (EAS) message.

The initial EAS message needs simply to identify the emergency classification level and include instructions to stay tuned to the radio station. Within the aforementioned 15 minutes, actual contact with the EAS station and dissemination of the initial message to the radio station must be demonstrated. During the Extent of Play meeting it was determined that the State EOC would be responsible for the Initial EAS message with coordination by the County EOCs.

An evaluator will be assigned at the EAS station (KTXY) to observe the station's procedures for broadcasting the messages. We expect to see actual receipt of the messages from the appropriate County EOC or the State Emergency Operations Center. Following receipt at the station, procedures to broadcast the message must be fully demonstrated up to the point of transmission. Actual broadcast of the message or EAS test messages is not required. The 15-minute clock stops when the broadcast (simulated) of the EAS message by the radio station is initiated. The FEMA evaluator will remain at the EAS station until the termination of the exercise to observe receipt and broadcast procedures for all EAS messages and Public Information messages. Copies of all EAS messages and Public Information messages will be requested from the facility.

The procedures for siren activation for each county must be demonstrated up to the point of actual activation and must be completed within the 15-minute timeframe. Actual siren activation may be simulated. In addition, tone alert radio and weather radio activation may be simulated by the EAS station, KTXY..

OBJECTIVE 11: PUBLIC INSTRUCTIONS AND EMERGENCY INFORMATION

Demonstrate the capability to coordinate the formulation and dissemination of accurate information and instructions to the public.

Expected Demonstration: The 15-minute requirement will not be applied to subsequent protective action instructions provided to the public after the initial notification. However, subsequent messages should be disseminated in a timely manner. Also, the procedures for providing the messages to the radio station remain the same as indicated for Objective number 10. Messages should be all inclusive by including previously identified areas as well as new areas. Procedures must be demonstrated, if appropriate, that ensure that EAS messages containing PARs that have been changed are rescinded and not repeated by the EAS station. In addition, procedures must be demonstrated to ensure that EAS and Public Information messages containing current PARs are repeated at pre-established intervals.

OBJECTIVE 12: EMERGENCY INFORMATION - MEDIA

Demonstrate the capability to coordinate the development and dissemination of clear, accurate, and timely information to the news media.

Expected Demonstration: Sufficient, timely, and accurate media briefings for both exercise days will be conducted at the Joint Public Information Center located at the State Emergency Operations Center in Jefferson City to provide adequate information to the public through the media.

OBJECTIVE 13: EMERGENCY INFORMATION - RUMOR CONTROL

Demonstrate the capability to establish and operate rumor control in a coordinated and timely manner.

Expected Demonstration: Rumor control staff at the Joint Public Information Center must demonstrate the capability to respond to an average of at least six calls per hour throughout the emergency phase. The staff should demonstrate the capability to monitor the contents of broadcast media coverage of the emergency situation. Any trends in rumors must be addressed in news releases or media briefings. At least one message should address a false or misleading rumor for which measures should be taken.

OBJECTIVE 14: IMPLEMENTATION OF PROTECTIVE ACTIONS - USE OF POTASSIUM IODIDE FOR EMERGENCY WORKERS AND INSTITUTIONALIZED INDIVIDUALS

Demonstrate the capability and resources to implement potassium iodide (KI) protective actions for emergency workers and institutionalized individuals.

Expected Demonstration: Although the decision to recommend the use of KI is not due for demonstration during this exercise, it is possible that the scenario could require it. If the decision to use KI is made, the instructions must be appropriately disseminated to all personnel including those deployed (simulated) for traffic and access control and other missions. However, as this is a group B objective, if the decision to use KI is not required by the scenario, all emergency workers, at all facilities, will be expected to demonstrate this objective through appropriate knowledge of the procedures for the use of KI. Actual administration of KI will be simulated. Verification of stored KI supplies at all county EOCs, Fulton State Hospital, and Fulton Reception and Diagnostic Center will be accomplished during the exercise.

OBJECTIVE 15: IMPLEMENTATION OF PROTECTIVE ACTIONS - SPECIAL POPULATIONS

Demonstrate the capability and resources necessary to implement appropriate protective actions for special populations.

Expected Demonstration: Telephone calls to special facilities, individuals with special needs, and transportation providers may be simulated. However, all facilities, individuals with special needs, and transportation providers which are required to be notified must be clearly identified and the simulated contacts appropriately documented. Telecommunications Device for the Deaf (TDD) calls to the hearing impaired population will be simulated and appropriately documented.

OBJECTIVE 16: IMPLEMENTATION OF PROTECTIVE ACTIONS - SCHOOLS

Demonstrate the capability and resources necessary to implement protective actions for school children within the plume pathway emergency planning zone (EPZ).

Expected Demonstration: We will expect the capability to evacuate schools to be demonstrated by the North Callaway R-1 Schools, Gasconade R-1 Public Schools, and Montgomery R-2 Schools. An exercise evaluator will be assigned to the above school to interview the respective principal and district superintendent (or other designated school official).

In addition, at least one school bus driver must be available at each school for an interview to determine awareness of and preparedness for the evacuation of school children. This will include demonstration of objectives number 4, 5, and 14: communications, emergency worker exposure, and use of KI, respectively. Also, a bus escort (supplied by the Callaway County EOC) or bus driver (North Callaway R-1 Schools only) must have dosimetry and KI available for this demonstration. The interviews described above will be conducted out-of-sequence from the exercise.

During the emergency phase of the actual exercise, all appropriate actions (e.g., notifications, EAS messages, etc.) must be taken (simulated) for any public or private schools or day care facilities affected by protective action recommendations. Actual telephone calls do not need to be made; however, all contacts which would be required should be appropriately documented.

OBJECTIVE 17: TRAFFIC AND ACCESS CONTROL

Demonstrate the organizational capability and resources necessary to control evacuation traffic flow and to control access to evacuated and sheltered areas.

Expected Demonstration: Deployment of traffic and access control personnel to assigned locations will be simulated. At least two individuals who would perform traffic and access control must be available at the Callaway, Gasconade, Montgomery, and Osage County EOCs for an interview to demonstrate knowledge of their roles and responsibilities concerning traffic and access control, as well as appropriate knowledge concerning dosimetry and potassium iodide procedures. We recommend this demonstration occur early in the exercise.

As the state should not establish traffic/access control points unless requested by the counties, demonstration of this objective by the State Emergency Operations Center will include establishing points only if requested and if requested, ensuring that points are managed appropriately. Successful demonstration will close the ARCA identified during the August 1997 exercise.

OBJECTIVE 18: RECEPTION CENTER - MONITORING, DECONTAMINATION AND REGISTRATION

Demonstrate the adequacy of procedures, facilities, equipment, and personnel for the radiological monitoring, decontamination, and registration of evacuees.

Expected Demonstration: At the Hearnese Reception Center, to be demonstrated on August 18, 1999, the number of evacuees required to be monitored within twelve hours is 2,818 (20% of the evacuees assigned to the center). The plans indicate that monitoring will be performed by a pool of monitors from the following agencies: MoNET, MoNG, and State Highway and

Transportation Department. According to the plan, one portal monitor will be available at this facility that will require one monitor to operate it. Also, a minimum of 2 monitors, based upon the plans, must demonstrate monitoring with hand held instruments (portal monitor backup at this facility, to ensure that all evacuees assigned to this center can be monitored within 12 hours. In addition, 2 monitors (male and female) must be available for evacuee remonitoring following decontamination and 2 monitors for vehicle monitoring. Based upon the above, a total of 7 monitors will be required for these demonstrations of evacuee and vehicle monitoring at each facility. At least six simulated evacuees per initial monitoring station (total of eighteen) must be processed into the reception center to allow demonstration of monitoring, decontamination, and registration capabilities. The actual number of simulated evacuees can be fewer than eighteen as each simulated evacuee can be monitored more than once. The monitoring sequences for each simulated evacuee will be timed by the evaluators in order to determine whether the reception centers can adequately meet the twelve-hour requirement referenced above. Issuance of dosimetry and operability checks of survey instruments will be observed by the evaluators.

The facilities at the Hearnes Multipurpose Building, utilized for monitoring and decontamination of evacuees, must be fully activated and setup to receive evacuees for evaluation. We agree that partial floor covering will be utilized to conserve supplies. High contamination risk areas will be covered, with remaining surfaces simulated being covered. Decontamination procedures must be initiated for at least one male and one female evacuee. The personnel may simulate decontamination procedures.

The individuals who perform monitoring must demonstrate an operational check of the instrument, utilizing a check source, prior to monitoring. Information on the proper reading or range of readings should be attached to or accompany the instrument.

Vehicle monitoring and vehicle decontamination teams must be present. The vehicle monitoring area must be setup and demonstrated. This will include monitoring of both the interior and exterior of at least two vehicles. Monitoring of the air filter will not be required. Actual decontamination of vehicles will not be required. This may be accomplished by interview including demonstration of appropriate knowledge of decontamination action levels.

All organizations who, per the plans, provide resources in support of registration center activities, must be present for evaluation at the Hearnes Multipurpose Building. These organizations are the Division of Family Services, American Red Cross, Missouri Nuclear Emergency Team, monitors from the monitoring pool, and the University of Missouri Campus Police.

Successful demonstration of this objective will close the ARCA identified at the Hermann reception and Care Center, concerning inappropriate monitoring techniques during the August 1997 exercise.

OBJECTIVE 19: CONGREGATE CARE

Demonstrate the adequacy of facilities, equipment, supplies, personnel, and procedures for congregate care of evacuees.

Expected Demonstration: In order to demonstrate this objective, the Hearnese Multipurpose Building will be evaluated on the adequacy of facilities for providing congregate care. The facilities will be required to be open to allow a walk-through by the evaluator to determine, through observation and inquiries, the adequacy of the physical facility, equipment, personnel, supplies, and procedures. Floor plans are to be made available to assist the evaluator. It is not necessary to set up Congregate Care operations as they would be in an actual emergency. Congregate care staff should demonstrate the capability to ensure that evacuees have been monitored for contamination and are uncontaminated before entering the congregate care area. According to the plans, the Division of Family Services and the American Red Cross provide resources and support for the congregate care centers. Therefore, a representative from each of these organizations, must be present during the evaluation.

OBJECTIVE 20: MEDICAL SERVICES - TRANSPORTATION

Demonstrate the adequacy of vehicles, equipment, procedures, and personnel for transporting contaminated, injured, or exposed individuals.

Expected Demonstration: This objective is to be demonstrated by the University of Missouri Ambulance on August 18, 1999. A non-specialized vehicle (e.g. car or truck) may be utilized to transport the simulated victim to the medical facility. However, prior to transport, communications between the ambulance and the receiving medical facility must be demonstrated. This would include providing information and data on the individual's condition, radiation monitoring results (if performed by the ambulance crew), and estimated time of arrival. Additionally, the ambulance crew must demonstrate, by interview, knowledge of where the ambulance and crew would be monitored and decontaminated, if required. The responding ambulance crew must have dosimetry and KI available and be knowledgeable of procedures for their use and of their exposure limits.

Monitoring of the simulated victim may be performed by the ambulance crew or deferred to the medical facility. The individual(s) who perform monitoring must demonstrate an operation check of the instruments, utilizing a check source, prior to monitoring. Information on the proper reading or range of readings should be attached to or accompany the instrument. If monitoring is deferred to the medical facility, appropriate contamination control measures must be demonstrated by the ambulance crew.

OBJECTIVE 21: MEDICAL SERVICES - FACILITIES

Demonstrate the adequacy of the equipment, procedures, supplies, and personnel of medical facilities responsible for treatment of contaminated, injured, or exposed individuals.

Expected Demonstration: This objective will be demonstrated by the University of Missouri medical Center on August 18, 1999. The medical facility must demonstrate the capability to activate and set up a radiological emergency area for treatment. Equipment and supplies must be available for the treatment of contaminated, injured, or exposed individuals. Appropriate contamination control procedures must be demonstrated.

The medical center must demonstrate the capability to monitor the individual for external contamination, 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 must be demonstrated or described to the evaluator. All monitoring activities must be completed as they would be in an actual emergency. Contamination of the individual will not be simulated with any low-level radiation source. The individual(s) who perform monitoring must demonstrate an operational check of the instruments, utilizing a check source, prior to monitoring. Information on the proper reading or range of readings, should be attached to or accompany the instrument.

OBJECTIVE 22: EMERGENCY WORKERS, EQUIPMENT, AND VEHICLES - MONITORING AND DECONTAMINATION

Demonstrate the adequacy of procedures for the monitoring and decontamination of emergency workers, equipment, and vehicles.

Expected Demonstration: Full credit for emergency worker monitoring and decontamination will be granted upon the successful demonstration of objective number 18 at the Hearnese Reception Center.

OBJECTIVE 23: SUPPLEMENTARY ASSISTANCE (FEDERAL/OTHER)

Demonstrate the capability to identify the need for external assistance and to request such assistance from Federal or other support organizations.

OBJECTIVE 30: CONTINUOUS 24-HOUR STAFFING

Demonstrate the capability to maintain staffing on a continuous 24-hour basis through an actual shift change.

Expected Demonstration: During the out-of-sequence events, this objective will be demonstrated by interview at the Hearnese Reception and Care Center with both shifts of the Radiological officer and Shelter Manager. In addition, an interview, with primary and backup personnel, will be conducted at the Fulton Reception and Diagnostic Center, Fulton State hospital, Callaway county Jail, Fulton Manor Nursing Home, Fulton Community Care, Riverview Nursing Home, and Presbyterian Manor of Fulton. No other locations are required to demonstrate a shift change at this exercise.

Appendix 4 - Exercise Scenario

This appendix contains a summary of the simulated sequence of events -- Exercise Scenario -- which was used as the basis for invoking emergency response actions by OROs during the Callaway Nuclear Power Plant full-scale exercise conducted on September 14, 1999.

The times listed below are those contained in the scenario. Actual times of key events are documented in Table 1 of the Exercise Timeline.

The exercise scenario was initially submitted by the Ameren Union Electric Company on July 15, 1999, and, following amendments, was approved by FEMA on September 7, 1999.

The scenario was based on a loss of containment accident resulting in a direct release to the environment.

SCENARIO SUMMARY

- 0700 Exercise begins with the plant operating at nearly 100% of full power.
- 0730 An **UNUSUAL EVENT** should be declared due to a bomb within the protected area.
- 0740 Notification of an Unusual Event to offsite agencies should occur
- 0810 An **ALERT** should be declared due to loss of Reactor Coolant System barrier.
- 0815 Notification of Alert to offsite agencies should occur.
- 0845 A SITE AREA EMERGENCY should be declared due to Incore Thermocouples have occasionally flashed to 700 degrees F or higher and that the Reactor Vessel Level Indicating System is at 40% or less.
- 0850 Notification of SITE AREA EMERGENCY to offsite agencies should occur.
- 1000 A GENERAL EMERGENCY should be declared due to the loss of all 3 barriers in containment.
- 1005 Notification of GENERAL EMERGENCY to offsite agencies should occur.
- 1321 Exercise terminates.