

FEB 22 1990

Docket No. 50-483

Union Electric Company
ATTN: Mr. Donald F. Schnell
Senior Vice President - Nuclear
Post Office Box 149 - Mail Code 400
St. Louis, MO 63166

Gentlemen:

We have received the enclosed Federal Emergency Management Agency (FEMA) letter and associated exercise report dated January 22, 1990, transmitting the FEMA Region VII report for the October 11, 1989 full participation exercise at the Callaway Nuclear Power Plant. The State of Missouri and the Counties of Callaway, Gasconade, Montgomery and Osage fully participated.

Four deficiencies were identified for Callaway County. These were corrected through appropriate plan and/or procedural changes. Based on its review of the exercise report and scheduled corrective actions, FEMA considers that offsite radiological emergency preparedness is adequate to provide reasonable assurance that appropriate measures can be taken offsite to protect the health and safety of the public living in the vicinity of the site in the event of a radiological emergency. As a result, the approval of offsite emergency preparedness under FEMA Rule 44 CFR 350 will remain in effect.

In accordance with 10 CFR 2.790 of the Commission's regulations, a copy of this letter and the enclosure will be placed in the NRC's Public Document Room.

Sincerely,

L. Robert Greger
L. Robert Greger, Chief
Reactor Programs Branch

Enclosure: As stated

See Attached Distribution

RIII *gd*
Patterson/gd
No 2/20/90

RIII *TO*
Snell
for

RIII *[Signature]*
Hague
2/21/90

RIII *[Signature]*
Greger
2/22

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FEB 22 1990

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cc w/enclosure:

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Federal Emergency Management Agency

Washington, D.C. 20472

Mr. Frank J. Congel
Director
Division of Radiation Protection
and Emergency Preparedness
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Congel:

Enclosed is a copy of the exercise report for the October 11, 1989, full-participation exercise of the offsite radiological emergency response plans, site-specific to the Callaway Nuclear Power Plant. The State of Missouri and the Counties of Callaway, Gasconade, Montgomery and Osage participated fully in the exercise. The report was prepared by Region VII of the Federal Emergency Management Agency (FEMA).

Four deficiencies were identified for Callaway County. All four deficiencies cited were able to be remedied through appropriate plan and/or procedural changes.

There were also sixteen Areas Requiring Corrective Action (ARCA) identified during this exercise for the State of Missouri and its affected counties. These ARCAs will either be demonstrated during the next exercise or addressed through plan changes.

FEMA considers that offsite radiological emergency preparedness is adequate to provide reasonable assurance that appropriate measures can be taken offsite to protect the health and safety of the public living in the vicinity of the site, in the event of a radiological emergency. Therefore, the approval of the offsite plans for the State of Missouri, site-specific to the Callaway Nuclear Power Plant granted under 44 CFR 350 on July 9, 1985, continues to be in effect.

If you have any questions, please feel free to call me on 646-2871.

Sincerely,

Dennis H. Kwiatkowski
Dennis H. Kwiatkowski
Assistant Associate Director
Office of Natural and Technological
Hazards

Enclosure

~~9002010160~~ (19)



**EXERCISE EVALUATION OF THE IMPLEMENTATION OF STATE
AND LOCAL RADIOLOGICAL EMERGENCY RESPONSE PLANS**

CONDUCTED OCTOBER 11, 1989

for the

CALLAWAY NUCLEAR POWER PLANT

**Fulton, Callaway County, Missouri
Union Electric Company, Licensee**

PARTICIPANTS:

State of Missouri

**County of Callaway
County of Gasconade**

**County of Montgomery
County of Osage**

(All jurisdictions participated)

DECEMBER 11, 1989

**prepared by
Federal Emergency Management Agency
Region VII Kansas City, Missouri**

Jerome D. Overstreet, Regional Director

900 2014161 (77pp)

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ABBREVIATIONS AND ACRONYMS

ANL	Argonne National Laboratory
ARC	American Red Cross
BRH	Missouri Division of Health, Bureau of Radiological Health
CCEOC	Callaway County Emergency Operations Center
CNPP	Callaway Nuclear Power Plant
CRCC	Columbia Reception and Care Center
CVCS	Chemical and Volume Control System
DFS	(Missouri) Division of Family Services
DOC	U.S. Department of Commerce
DOE	U.S. Department of Energy
DOI	U.S. Department of Interior
DOT	U.S. Department of Transportation
EBS	Emergency Broadcast System
ECC	Emergency Communications Center
ECCS	Emergency Core Coolant System
EFPD	Equivalent Full Power Days
EICC	Emergency Information Coordination Center (FEMA Headquarters)
EMD	Emergency Management Director
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPA	U.S. Environmental Protection Agency
EPD	Emergency Preparedness Director
ESF	Emergency Safeguard Facilities

EPZ	Emergency Planning Zone
FAA	Federal Aviation Administration
FCP	Forward Command Post
FDA	U.S. Food and Drug Administration
FEMA	Federal Emergency Management Agency
FHA	Federal Highway Administration
FSA	Forward Staging Area
GCEOC	Gasconade County Emergency Operations Center
GCRCC	Gasconade County Reception and Care Center
GM	Geiger - Mueller
GOIC	(Union Electric Company's) General Office Information Center
HHS	U.S. Department of Health and Human Services
INEL	Idaho National Engineering Laboratory
JCRCC	Jefferson City Reception and Care Center
JPIC	Joint Public Information Center
KI	Potassium Iodide
LOCA	Loss-of-Coolant Accident
MCEOC	Montgomery County Emergency Operations Center
MCRCC	Montgomery County Reception and Care Center
MERT	Medical Emergency Response Team
mR	Millirem
MRC	Media Release Center
MSIV	Main Steam Isolation Valve
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)

OCEOC Osage County Emergency Operations Center
OFN Off Normal Procedures
PAG Protective Action Guide
PAR Protective Action Recommendation
PHS U.S. Public Health Service
RAC Regional Assistance Committee
RADLAB State Radiological Laboratory
RCP Reactor Coolant Pump
RCS Reactor Coolant System
RHR Residual Heat Removal
SEMA Missouri State Emergency Management Agency
SEOC State Emergency Operations Center
SOP Standard Operating Procedure
TLD Thermoluminescent Dosimeter
 μ Ci Microcuries
UE Union Electric
USDA U.S. Department of Agriculture

EXERCISE SUMMARY

The purpose of an exercise is to determine the ability of appropriate off-site agencies to respond to an emergency covered by State and Local Radiological Emergency Response Plans. The evaluation of such an effort will, of necessity, tend to focus on the negative aspects of the exercise, on inadequacies in planning, preparedness and performance.

This focus of attention on the negative should not be taken to mean that there were not a great many positive accomplishments, as well. Indeed, there were; however, in the interest of brevity, only inadequacies will herein be summarized.

FEMA classifies exercise inadequacies as deficiencies or areas requiring corrective action. Definitions of these categories follow.

Deficiencies are demonstrated and observed inadequacies that would cause a finding that off-site emergency preparedness was not adequate to provide reasonable assurance that appropriate protective measures can be taken to protect the health and safety of the public living in the vicinity of a nuclear power facility in the event of a radiological emergency.

Areas requiring corrective action are demonstrated and observed inadequacies of State and local government performance, and although their correction is required, they are not considered, by themselves, to adversely impact public health and safety.

In addition, FEMA identifies areas recommended for improvement, which are problem areas observed during an exercise that are not considered to adversely impact public health and safety. While not required, correction of these would enhance an organization's level of emergency preparedness.

It should be noted that there is a distinction between failure to fully demonstrate an objective and the declaration of an inadequacy. Limitations imposed by an exercise scenario, or the choice of one response option over another could preclude a full demonstration, yet, not constitute an inadequacy.

MISSOURI OPERATIONS

Evaluation of this exercise resulted in four deficiencies and sixteen areas requiring corrective action as set forth below.

State Emergency Operations Center (SEOC)

Of the six objectives planned for demonstration, all but two were fully demonstrated. The two areas requiring corrective action pertained to Objectives Number 5 and 13.

Objective Number 5 was inadequately demonstrated due to a failure to post on the status board those protective actions actually implemented.

Objective Number 13 was inadequate due to a failure to release two Osage County EBS messages in a timely manner. The releases were delayed when other non-priority issues were allowed to take precedence over the issuance of protective actions.

State Forward Command Post

All eight objectives planned for this facility were fully demonstrated with no inadequacies.

Dose Assessment and Field Team Coordination

Nine objectives were planned for demonstration, with this function being conducted at the EOF. No inadequacies were observed, as all objectives were fully demonstrated.

Field Monitoring Team

Six objectives were planned for demonstration. Though no inadequacies were observed, Objective Number 2, activation and staffing, was not credited with full demonstration since only one field team was deployed. In the future, at least two field teams will be required for exercise demonstration.

Radiological Laboratory

All three objectives were fully demonstrated, with no inadequacies observed.

Joint Public Information Center

Six objectives were planned for demonstration. Five were fully demonstrated; one was inadequately demonstrated and is an area requiring corrective action.

Objective Number 5, was inadequately demonstrated due to a failure to maintain both status boards in a timely manner. In addition, at times, the boards reflected differing off-site conditions.

COUNTY OPERATIONS

Callaway County/Fulton Emergency Operations Center

Thirteen objectives were planned for demonstration; eight were fully demonstrated and five were inadequately demonstrated. These inadequacies resulted in four deficiencies and four areas requiring corrective action.

The first deficiency resulted from the fact that it required 49 minutes to write and release the protective actions called for at the General Emergency. This lack of timeliness was attributed to a failure to utilize prewritten landmark descriptions.

The second deficiency resulted when the County failed to notify Riverview Nursing Home to evacuate.

The third deficiency resulted when the County failed to notify South Callaway School to evacuate.

The fourth deficiency is rooted in the use of North Callaway High School as a temporary relocation center without the proper provisions.

The first area requiring corrective action (ARCA) occurred when the Director called for the evacuation of the entire EPZ within Callaway County except for the City of Fulton. Evacuation to this extent was not warranted.

The second ARCA resulted from the issuance of two EBS messages which omitted three subsectors and some information regarding evacuation routes.

The third ARCA resulted when the Sheriff assigned the same car to two access control points, and, after discovering the error, did not correct it for over an hour. There was also uncertainty regarding whether or not Sheriff's deputies could permit reentry to an evacuated area for essential purposes.

The fourth ARCA was also related to access control, and stems from the fact that access control points shown on maps do not agree with those described in Implementing Procedure 1, Supplement 2.

Fulton School District #58 - Bush School

Four objectives were planned for demonstration. Three were done fully. Objective Number 6, exposure control, was not adequately demonstrated. When the driver referred to his instruction card to verify his dose limit, it was not listed. The ARCA calls for

bus driver instruction cards to be amended to include information on dose limits and reporting procedures.

Gasconade County EOC

Nine objectives were to be demonstrated. There were no inadequacies and all objectives were fully demonstrated, though Objectives Number 6, 11, and 13 were limited in content, as the County was not affected by the plume.

Gasconade County Reception and Care Center

There were eight objectives scheduled for demonstration. No inadequacies were observed as all objectives were fully demonstrated.

Evacuee and Emergency Worker Monitoring and Decontamination - Hearnes Center

This demonstration was held at the Gasconade County Reception and Care Facility instead of the Hearnes Center. It was intended to provide an opportunity for the monitoring staff to rectify five areas requiring corrective action from the previous exercise. All monitoring and decontamination procedures were adequately demonstrated, fully accounting for all five areas requiring corrective action.

Jefferson City Reception and Care

At a previous exercise, the center manager position did not demonstrate a second shift. This person was allowed to do a shift change at the Gasconade County Reception and Care Center.

This was successfully accomplished, fully accounting for this area requiring corrective action.

Montgomery County Emergency Operations Center

Nine objectives were planned for demonstration. All were fully demonstrated. However, Objectives Number 6, 11 and 13 were limited in extent since the plume did not affect Montgomery County.

Osage County Emergency Operations Center

Sixteen objectives were planned for demonstration. Six were not adequately demonstrated, resulting in the following six areas requiring corrective action.

Activation calls were made by the County Commissioner instead of the dispatcher, as the Plan dictates.

A church van used to evacuate disabled persons was not among the resources listed in the Plan, nor was the driver properly trained or equipped for appropriate exposure control measures.

At the Site Area Emergency, the dispatcher sounded the sirens without obtaining prior approval from the County Commissioner, as the Plan stipulates.

In providing transportation for the mobility impaired, one person who had been identified was omitted from the simulated pickup list.

The Plan requires notification of special facilities at the Alert. Chamois school was not called until 39 minutes after the Site Area Emergency.

Standard Operating Procedure Number 1, must be amended to clarify that access control must be established when sheltering is called for as well as during evacuation.

Osage R-1 School

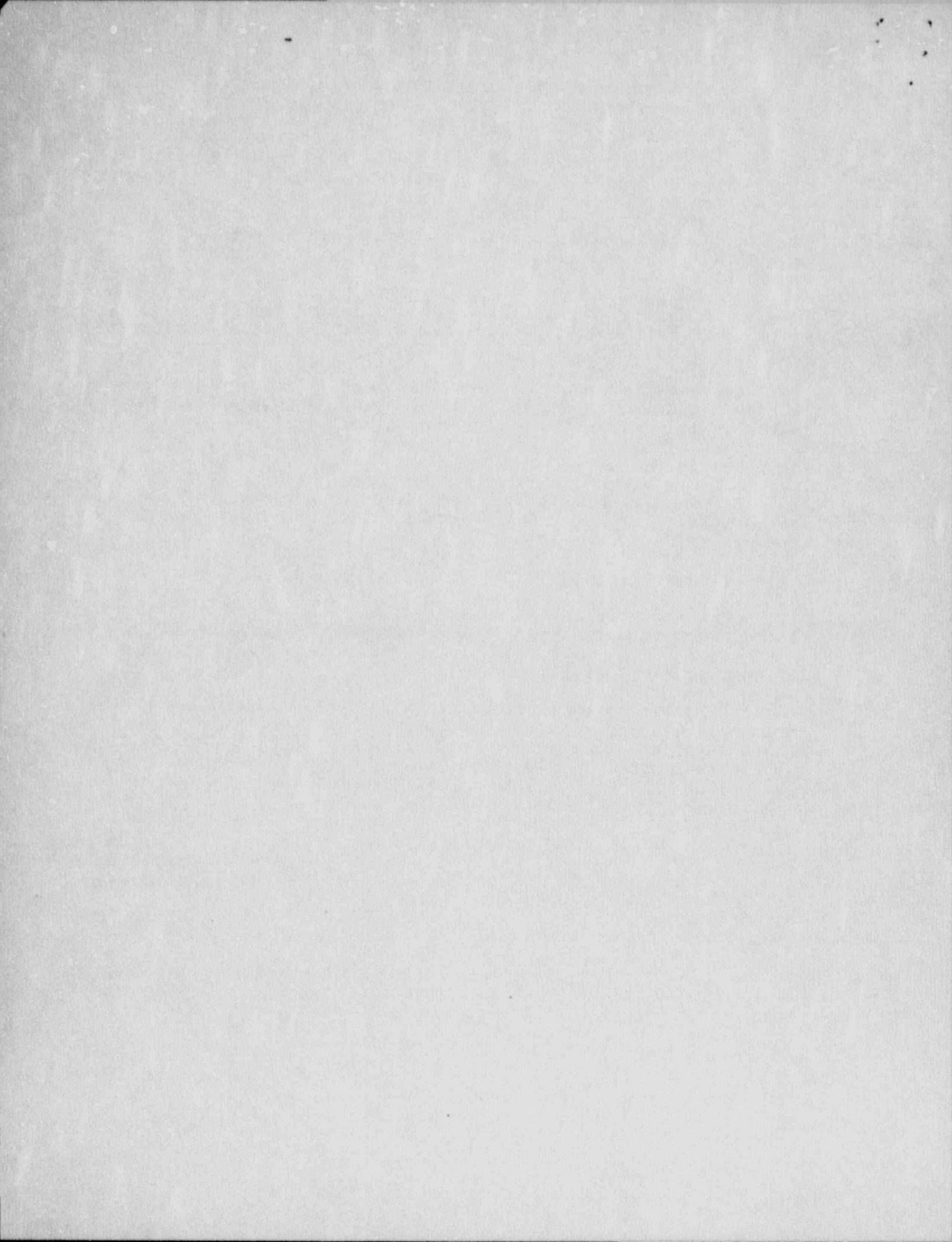
In demonstrating school evacuation procedures, it was observed that each bus did not have a dosimetry kit. This is an area requiring corrective action.

Callaway County Ambulance

Four objectives were scheduled, and all were successfully demonstrated with no inadequacies observed.

Callaway County Hospital

Of the two objectives demonstrated, one will require corrective action. This resulted from the presence and assistance of a health physicist from Union Electric, when the Plan requires that the Hospital provide this capability.



1 INTRODUCTION

1.1 EXERCISE BACKGROUND

On December 7, 1979, the President directed the Federal Emergency Management Agency (FEMA) to assume lead responsibility for all off-site nuclear planning and response.

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

- * Taking the lead in off-site emergency planning and in the review and evaluation of radiological emergency response plans developed by State and local governments.
- * Determining whether such plans can be implemented on the basis of observation and evaluation of exercises of the plans developed by State and local governments.
- * Coordinating the activities of the following Federal agencies with responsibilities in the radiological emergency planning process:
 - U.S. Department of Commerce (DOC)
 - U.S. Nuclear Regulatory Commission (NRC)
 - U.S. Environmental Protection Agency (EPA)
 - U.S. Department of Energy (DOE)
 - U.S. Department of Health and Human Services (HHS)
 - U.S. Food and Drug Administration (FDA)
 - U.S. Public Health Service (PHS)
 - U.S. Department of Transportation (DOT)
 - U.S. Department of Agriculture (USDA)
 - U.S. Department of the Interior (DOI)

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

Formal submission of the radiological emergency response plans for the Callaway Nuclear Power Plant (CNPP) to the RAC by the State of Missouri and affected local jurisdictions was followed by a critique and evaluation of these plans.

A joint radiological emergency preparedness exercise was conducted for CNPP on March 21, 1984, to assess the capability of State and local emergency preparedness organizations to: (1) implement their radiological emergency preparedness plans and procedures, and (2) protect the public during a radiological emergency at the Callaway Nuclear Power Plant.

During the March 21, 1984 exercise, the State failed to demonstrate the ability to promptly alert the public, and to effectively coordinate the development and release of protective action recommendations. Also, Callaway County was unable to demonstrate the capability to adequately and effectively sound sirens in the EPZ. These failures necessitated a remedial exercise which was successfully conducted on April 19, 1984.

A second exercise was conducted on June 5, 1985.

The 1986 exercise was conducted on July 30, and was classified a full scale exercise with all State and local jurisdictions participating.

The 1987 exercise was not evaluated.

The June 6, 1988 exercise was a partial scale exercise and was conducted off-hours.

The October 11, 1989 exercise was classified as full scale with all State and local jurisdictions participating and was conducted during normal working hours.

1.2 EXERCISE EVALUATORS

Nineteen (19) Federal agency personnel and five (5) FEMA contract staff evaluated the off-site emergency response functions. These individuals and their exercise assignments are given below:

<u>OBSERVER</u>	<u>AGENCY</u>	<u>ASSIGNMENT</u>
Frank Begley	FEMA	Regional Office Coordination
Bob Bissell	FEMA	Callaway Co. EOC
Bill Brinck	EPA	Dose Assessment/F.T. Coord.
Marlee Carroll	FEMA	Osage Co. EOC
Jim Donley	FEMA	Gasconade Co. EOC
Bob Dye	EPA	RAD LAB
Jon Furst	FEMA	State EOC
Steve Harrell	FEMA	FCP
Don Hulet	ANL	Field Monitoring
Carl Hunckler	ANL	Field Monitoring
Dewey Johnson	FEMA	State EOC
Rich Leonard	FEMA	Overview
Gary McClure	FEMA	JPIC
Diane Money	FEMA	JPIC
Carol Roadifer	DOT/FHA	Callaway Co. EOC
Ed Robinson	ANL	Montgomery Co. EOC
Al Schulz	FEMA	FCP
Ed Sears	ANL	Gasconade Co. R&C/Medic

Dee Seymour	ANL	Osage Co. EOC
Ron Shaw	FEMA	Gasconade Co. EOC/R&C
Dick Sumpter	FEMA	Overview
Dianne Wilson	FEMA	Montgomery Co. EOC
Jim Winger	FEMA	Callaway Co. EOC
Connie Wisniewski	FEMA	Observer

1.3 EVALUATION CRITERIA

The evaluation criteria for this exercise were:

1. NUREG-0654, FEMA-REP-1, Rev. 1 (All applicable requirements).
 - 1.a. The thirty-six standardized objectives developed as a summary of observable elements contained in NUREG-0654, and submitted by the Missouri State Emergency Management Agency indicating the locations for demonstration(s). (See matrix, pages 3-1 to 3-24)
2. Missouri Nuclear Accident Plan - Callaway, 1989.
3. Callaway County/Fulton Radiological Emergency Response Plan, 1989.
Callaway County/Fulton Implementing Procedure Responsibilities, 1989.
4. Gasconade County Radiological Emergency Response Plan.
Gasconade County Implementing Procedure Responsibilities, 1989.
5. Montgomery County Radiological Emergency Response Plan.
Montgomery County Implementing Procedure Responsibilities, 1989.
6. Osage County Radiological Emergency Response Plan.
Osage County Implementing Procedure Responsibilities, 1989.

1.4 EXERCISE OBJECTIVES

On July 7, 1989, the State of Missouri submitted formal objectives for State and local jurisdictions for this exercise arrayed in the following matrices, showing which objectives applied to which facilities or functions. The objectives are numbered 1 through 36, and will be referred to by number throughout this evaluation report.

STATE OBJECTIVES 1989

	EOC	FCP	DOSE ASSEM	FM	JPIC	MEDICAL	RAD LAB
1. * Demonstrate the ability to monitor, understand and use emergency classification levels (ECL) through the appropriate implementation of emergency functions and activities corresponding to ECL as required by the scenario. The four ECL's are: Notification of Unusual Event, Alert, Site Area Emergency and General Emergency. (NEW)	X	X			X		
2. * Demonstrate the ability to fully alert, mobilize and activate personnel for both facility and field-based emergency functions (1)	X	X	X	X	X	X	
3. * Demonstrate the ability to direct, coordinate and control emergency activities.	X	X	X				
4. * Demonstrate the ability to communicate with all appropriate locations, organizations, and field personnel. (5)	X	X	X	X	X	X	
5. * Demonstrate the adequacy of facilities equipment, displays and other materials to support emergency operations (4)	X	X	X		X		

*"Core Objectives" that are to be demonstrated in each biennial exercise.

- 6. * Demonstrate ability to continuously monitor and control emergency worker exposure (20)
- 7. * Demonstrate the appropriate equipment and procedures for determining field radiation measurements. (7)
- 8. * Demonstrate the appropriate equipment and procedures for the measurement of airborne radioiodine concentrations as low as 10^{-7} microcurie per cc in the presence of noble gases. (8)
- 9. * Demonstrate ability to obtain samples of particulate activity in the airborne plume and promptly perform laboratory analyses. (New)*
- 10. * Demonstrate the ability within the plume exposure pathway, to project dosage to the public via plume exposure based on plant and field data. (10)

EOC	FCP	DOSE ASSEM	FM	JPIC	MEDICAL	RAD LAB
	X	X	X		X	
			X			
			X			
			X			X
		X				

*"Core Objectives" that are to be demonstrated in each biennial exercise.

	EOC	FCP	DOSE ASSEM	FM	JPIC	MEDICAL	RAD LAB
11. * Demonstrate the ability to make appropriate protective actions decisions, based on projected or actual dosage. EPA PAG's availability of adequacy shelter, evacuation time estimates and other relevant factors (10)		X	X				
12. Demonstrate the ability to initially alert the public within the 10 mile EPZ, and begin dissemination of an instructional message within 15 minutes of a decision by appropriate State and/or local official(s). (13)	X						
13. * Demonstrate the ability to coordinate the formulation and dissemination of accurate information and instructions to the public in a timely fashion after the initial alert and notification has occurred. (14, 25)	X						
14. * Demonstrate the ability to brief the media in an accurate, coordinate and timely manner. (24)					X		
15. * Demonstrate the ability to establish and operate rumor control in a coordinated and timely fashion. (26)					X		

*"CORE Objectives" that are to be demonstrated in each biennial exercise.

16. Demonstrate the ability to make the decision to recommend the use of KI to emergency workers and institutionalized persons, based on predetermined criteria, as well as to distribute and administer it once the decision is made, if necessitated by radioiodine releases. (21, 22)

17. Demonstrate the ability to make the decision if the State plan so specifies, to recommend the use of KI for the general public, based on predetermined criteria, as well as to distribute and administer it once the decision is made, if necessitated by radioiodine releases. (21, 22)

18. Demonstrate the ability and resources necessary to implement appropriate protective actions for the impacted permanent and transient plume EPZ population (including transit-dependent persons, special needs populations, handicapped and institutionalized persons). (15)

EOC	FCP	DOSE ASSEM	FM	JPIC	MEDICAL	RAD LAB
		X			X	

*"CORE Objectives" that are to be demonstrated in each biennial exercise.

	EOC	FCP	DOSE ASSEM	FM	JPIC	MEDICAL	RAD LAB
19. ** Demonstrate the ability and resources necessary to implement appropriate protective actions for school children within the plume EPZ. (19)							
20. ** Demonstrate the organizational ability and resources necessary to control evacuation traffic flow and to control access to evacuated and sheltered areas. (16,17)	X						
21. ** Demonstrate the adequacy of procedures facilities, equipment and personnel for the registration, radiological monitoring and decontamination of evacuees. (27)							
22. ** Demonstrate the adequacy of facilities equipment and personnel for congregate care of evacuees. (28)							
23. ** Demonstrate the adequacy of vehicles, equipment, procedures and personnel for transporting contaminated, injured or exposed individuals. (31)						X	

** Scenario Dependent

	EOC	FCP	DOSE ASSEM	FM	JPIC	MEDICAL	RAD LAB
24. Demonstrate the adequacy of medical facilities equipment, procedures, personnel for handling contaminated injured or exposed individuals. (31). **						X	
25. Demonstrate the adequacy of facilities equipment, supplies, procedures and personnel for decontamination of emergency workers, equipment and vehicles and for waste disposal. (29) **							
26. Demonstrate ability to identify the need for and call upon federal and other outside support agencies assistance. (32) **							
27. Demonstrate the appropriate use of equipment and procedures for collection and transport of samples of vegetation, food crops, milk, meat poultry, water, and animal feeds (indigenous to the area and stored). (9). **							

**Scenario Dependent

	EOC	FCP	DOSE ASSEM	FM	JPIC	MEDICAL	RAD LAB
28. Demonstrate the appropriate lab operations and procedures for measuring and analyzing samples of vegetation, food corps, milk, meat, poultry, water and animal feeds (indigenous to the area and stored). (9)							
29. Demonstrate the ability to project dosage to public for ingestion pathway exposure and determine appropriate protective measures, based on field data. FDA PAG's and other relevant factors. (11)							
30. Demonstrate the ability to implement both preventive and emergency protective actions for ingestion pathway hazards. (12)							
31. Demonstrate the ability to estimate total population exposure. (34)							
32. Demonstrate the ability to determine appropriate measures for controlled re-entry and recovery based on estimated total population exposure, available EPA PAG's and other relevant factors. (35)			X				

** Scenario Dependent

- 33. Demonstrate ability to implement appropriate measures for controlled re-entry and recovery. (35)
**
- 34. Demonstrate the ability to maintain staffing on a continuous 24 hour basis by actual shift change. (2)
**
- 35. Demonstrate the ability to coordinate the evacuation of on site personnel. (23)
**
- 36. Demonstrate the ability to carry out emergency response EOC's, mobilize staff that report to the EOC's, establish communications linkages and complete telephone call down during an unannounced off hours drill or exercise. (New)
**

EOC	FCP	DOSE ASSEM	FM	JPIC	MEDICAL	RAD LAB
	X					

**Scenario Dependent

	CALLAWAY	GASCONADE	MONTGOMERY	OSAGE
1. * Demonstrate the ability to monitor, understand and use emergency classification levels (ECL) through the appropriate implementation of emergency functions and activities corresponding to ECL as required by the scenario. The four ECL's are: Notification of Unusual Event, Alert, Site Area Emergency and General Emergency. (NEW)	X	X	X	X
2. * Demonstrate the ability to fully alert, mobilize and activate personnel for both facility and field-based emergency functions (1)	X	X	X	X
3. * Demonstrate the ability to direct, coordinate and control emergency activities.	X	X	X	X
4. * Demonstrate the ability to communicate with all appropriate locations, organizations, and field personnel. (5)	X	X	X	X
5. * Demonstrate the adequacy of facilities, equipment, displays and other materials to support emergency operations (4)	X	X	X	X

*"Core Objectives" that are to be demonstrate in each biennial exercise.

	CALLAWAY	GASCONADE	MONTGOMERY	OSAGE
6. * Demonstrate ability to continuously monitor and control emergency worker exposure (20)	X	X	X	X
7. * Demonstrate the appropriate equipment and procedures for determining field radiation measurements. (7)				
8. * Demonstrate the appropriate equipment and procedures for the measurement of airborne radiiodine concentrations as low as 10^{-7} microcurie per cc in the presence of noble gases. (8)				
9. * Demonstrate ability to obtain samples of particulate activity in the airborne plume and promptly perform laboratory analyses. (New)*				
10. * Demonstrate the ability within the plume exposure pathway, to project dosage to the public via plume exposure based on plant and field data. (10)				

*"Core Objectives" that are to be demonstrated in each biennial exercise.

11. Demonstrate the ability to make appropriate protective actions decisions, based on projected or actual dosage. EPA PAG's availability of adequacy shelter, evacuation time estimates and other relevant factors (10)

12. Demonstrate the ability to initially alert the public within the 10 mile EPZ, and begin dissemination of an instructional message within 15 minutes of a decision by appropriate State and/or local official(s). (13)

13. Demonstrate the ability to coordinate the formulation and dissemination of accurate information and instructions to the public in a timely fashion after the initial alert and notification has occurred. (14, 25)

14. Demonstrate the ability to brief the media in an accurate, coordinate and timely manner. (24)

15. Demonstrate the ability to establish and operate rumor control in a coordinated and timely fashion. (26)

	CALLAWAY	GASCONADE	MONTGOMERY	OSAGE
	X	X	X	X
	X	X	X	X
	X	X	X	X

*"CORE Objectives" that are to be demonstrated in each biennial exercise.

	CALLAWAY	GASCONADE	MONTGOMERY	OSAGE
16. Demonstrate the ability to make the decision to recommend the use of KI to emergency workers and institutionalized persons, based on predetermined criteria, as well as to distribute and administer it once the decision is made, if necessitated by radioiodine releases. (21, 22)				
17. Demonstrate the ability to make the decision if the State plan so specifies, to recommend the use of KI for the general public, based on predetermined criteria, as well as to distribute and administer it once the decision is made, if necessitated by radioiodine releases. (21, 22)				
18. Demonstrate the ability and resources necessary to implement appropriate protective actions for the impacted permanent and transient plume EPZ population (including transit-dependent persons, special needs populations, handicapped and institutionalized persons). (15)				X

*"CORE Objectives" that are to be demonstrated in each biennial exercise.

	CALLAWAY	GASCONADE	MONTGOMERY	OSAGE
19. Demonstrate the ability and resources necessary to implement appropriate protective actions for school children within the plume EPZ. (19) **	X			X
20. Demonstrate the organizational ability and resources necessary to control evacuation traffic flow and to control access to evacuated and sheltered areas. (16,17) **				X
21. Demonstrate the adequacy of procedures facilities, equipment and personnel for the registration, radiological monitoring and decontamination of evacuees. (27) **				
22. Demonstrate the adequacy of facilities equipment and personnel for congregate care of evacuees. (28) **				
23. Demonstrate the adequacy of vehicles, equipment, procedures and personnel for transporting contaminated, injured or exposed individuals. (31) **				

** Scenario Dependent

- 24. Demonstrate the adequacy of medical facilities equipment, procedures, personnel for handling contaminated injured or exposed individuals. (31).
**
- 25. Demonstrate the adequacy of facilities equipment, supplies, procedures and personnel for decontamination of emergency workers, equipment and vehicles and for waste disposal. (29)
**
- 26. Demonstrate ability to identify the need for and call upon federal and other outside support agencies assistance. (32)
**
- 27. Demonstrate the appropriate use of equipment and procedures for collection and transport of samples of vegetation, food crops, milk, meat poultry, water, and animal feeds (indigenous to the area and stored). (9).
**

CALLAWAY	GASCONADE	MONTGOMERY	OSAGE

**Scenario Dependent

	CALLAWAY	GASCONADE	MONTGOMERY	OSAGE
28. Demonstrate the appropriate lab operations and procedures for measuring and analyzing samples of vegetation, food crops, milk, meat, poultry, water and animal feeds (indigenous to the area and stored). (9) **				
29. Demonstrate the ability to project dosage to public for ingestion pathway exposure and determine appropriate protective measures, based on field data. FDA PAG's and other relevant factors. (11) **				
30. Demonstrate the ability to implement both preventive and emergency protective actions for ingestion pathway hazards. (12) **				
31. Demonstrate the ability to estimate total population exposure. (34) **				
32. Demonstrate the ability to determine appropriate measures for controlled re-entry and recovery based on estimated total population exposure, available EPA PAG's and other relevant factors. (35) **				X

** Scenario Dependent

- 33. Demonstrate ability to
** implement appropriate
measures for controlled
re-entry and recovery.
(35)
- 34. Demonstrate the ability
** to maintain staffing
on a continuous 24 hour
basis by actual shift
change. (2)
- 35. Demonstrate the ability
** to coordinate the evac-
uation of on site per-
sonnel. (23)
- 36. Demonstrate the ability
** to carry out emergency
response EOC's, mobil-
ize staff that report
to the EOC's, establish
communications linkages
and complete telephone
call down during an
unannounced off hours
drill or exercise. (New)

CALLAWAY	GASCONADE	MONTGOMERY	OSAGE
			X
			X

**Scenario Dependent

RECEPTION AND CARE OBJECTIVES 1989

	COLUMBIA	HERMANN	MONTGOMERY CITY	JEFF. CITY
1. * Demonstrate the ability to monitor, understand and use emergency classification levels (ECL) through the appropriate implementation of emergency functions and activities corresponding to ECL as required by the scenario. The four ECL's are: Notification of Unusual Event, Alert, Site Area Emergency and General Emergency. (NEW)				
2. * Demonstrate the ability to fully alert, mobilize and activate personnel for both facility and field-based emergency functions (1)		X		
3. * Demonstrate the ability to direct, coordinate and control emergency activities.		X		
4. * Demonstrate the ability to communicate with all appropriate locations, organizations, and field personnel. (5)		X		
5. * Demonstrate the adequacy of facilities equipment, displays and other materials to support emergency operations (4)				

*"Core Objectives" that are to be demonstrate in each biennial exercise.

	COLUMBIA	HERMANN	MONTGOMERY CITY	JEFF CITY
6. * Demonstrate ability to continuously monitor and control emergency worker exposure (20)		X		
7. * Demonstrate the appropriate equipment and procedures for determining field radiation measurements. (7)				
8. * Demonstrate the appropriate equipment and procedures for the measurement of airborne radioiodine concentrations as low as 10 ⁻⁷ microcurie per cc in the presence of noble gases. (8)				
9. * Demonstrate ability to obtain samples of particulate activity in the airborne plume and promptly perform laboratory analyses. (New)*				
10. * Demonstrate the ability within the plume exposure pathway, to project dosage to the public via plume exposure based on plant and field data. (10)				

*"Core Objectives" that are to be demonstrated in each biennial exercise.

11. Demonstrate the ability
* to make appropriate protective actions decisions, based on projected or actual dosage. EPA PAG's availability of adequacy shelter, evacuation time estimates and other relevant factors (10)

12. Demonstrate the ability to initially alert the public within the 10 mile EPZ, and begin dissemination of an instructional message within 15 minutes of a decision by appropriate State and/or local official(s). (13)

13. Demonstrate the ability
* to coordinate the formulation and dissemination of accurate information and instructions to the public in a timely fashion after the initial alert and notification has occurred. (14, 25)

14. Demonstrate the ability
* to brief the media in an accurate, coordinate and timely manner. (24)

15. Demonstrate the ability
* to establish and operate rumor control in a coordinated and timely fashion. (26)

COLUMBIA	HERMANN	MONTGOMERY CITY	JEFF. CITY

*"CORE Objectives" that are to be demonstrated in each biennial exercise.

16. Demonstrate the ability
 ** to make the decision to recommend the use of KI to emergency workers and institutionalized persons, based on predetermined criteria, as well as to distribute and administer it once the decision is made, if necessitated by radioiodine releases. (21, 22)

17. Demonstrate the ability
 ** to make the decision if the State plan so specifies, to recommend the use of KI for the general public, based on predetermined criteria, as well as to distribute and administer it once the decision is made, if necessitated by radioiodine releases. (21, 22)

18. Demonstrate the ability
 ** and resources necessary to implement appropriate protective actions for the impacted permanent and transient plume EPZ population (including transit-dependent persons, special needs populations, handicapped and institutionalized persons). (15)

	COLUMBIA	HERMANN	MONTGOMERY CITY	JEFF. CITY
16. Demonstrate the ability ** to make the decision to recommend the use of KI to emergency workers and institutionalized persons, based on predetermined criteria, as well as to distribute and administer it once the decision is made, if necessitated by radioiodine releases. (21, 22)				
17. Demonstrate the ability ** to make the decision if the State plan so specifies, to recommend the use of KI for the general public, based on predetermined criteria, as well as to distribute and administer it once the decision is made, if necessitated by radioiodine releases. (21, 22)				
18. Demonstrate the ability ** and resources necessary to implement appropriate protective actions for the impacted permanent and transient plume EPZ population (including transit-dependent persons, special needs populations, handicapped and institutionalized persons). (15)				

*"CORE Objectives" that are to be demonstrated in each biennial exercise.

	COLUMBIA	HERMANN	MONTGOMERY CITY	JEFF. CITY
19. Demonstrate the ability and resources necessary to implement appropriate protective actions for school children within the plume EPZ. (19) **				
20. Demonstrate the organizational ability and resources necessary to control evacuation traffic flow and to control access to evacuated and sheltered areas. (16,17) **				
21. Demonstrate the adequacy of procedures facilities, equipment and personnel for the registration, radiological monitoring and decontamination of evacuees. (27) **	X Demonstrate at Hermann	X		
22. Demonstrate the adequacy of facilities equipment and personnel for congregate care of evacuees. (28) **		X		
23. Demonstrate the adequacy of vehicles, equipment, procedures and personnel for transporting contaminated, injured or exposed individuals. (31) **				

** Scenario Dependent

	COLUMBIA	HERMANN	MONTGOMERY CITY	JEFF. CITY
24. Demonstrate the adequacy of medical facilities equipment, procedures, personnel for handling contaminated injured or exposed individuals. (31). **				
25. Demonstrate the adequacy of facilities equipment, supplies, procedures and personnel for decontamination of emergency workers, equipment and vehicles and for waste disposal. (29) **	X Demonstrate at Hermann	X		
26. Demonstrate ability to identify the need for and call upon federal and other outside support agencies assistance. (32) **				
27. Demonstrate the appropriate use of equipment and procedures for collection and transport of samples of vegetation, food crops, milk, meat poultry, water, and animal feeds (indigenous to the area and stored). (9). **				

**Scenario Dependent

	COLUMBIA	HERMANN	MONTGOMERY CITY	JEFF. CITY
28. ** Demonstrate the appropriate lab operations and procedures for measuring and analyzing samples of vegetation, food crops, milk, meat, poultry, water and animal feeds (indigenous to the area and stored). (9)				
29. ** Demonstrate the ability to project dosage to public for ingestion pathway exposure and determine appropriate protective measures, based on field data. FDA PAG's and other relevant factors. (11)				
30. ** Demonstrate the ability to implement both preventive and emergency protective actions for ingestion pathway hazards. (12)				
31. ** Demonstrate the ability to estimate total population exposure. (34)				
32. ** Demonstrate the ability to determine appropriate measures for controlled re-entry and recovery based on estimated total population exposure, available EPA PAG's and other relevant factors. (35)				

** Scenario Dependent

33. Demonstrate ability to
 ** implement appropriate
 measures for controlled
 re-entry and recovery.
 (35)
34. Demonstrate the ability
 ** to maintain staffing
 on a continuous 24 hour
 basis by actual shift
 change. (2)
35. Demonstrate the ability
 ** to coordinate the evac-
 uation of on site per-
 sonnel. (23)
36. Demonstrate the ability
 ** to carry out emergency
 response EOC's, mobil-
 ize staff that report
 to the EOC's, establish
 communications linkages
 and complete telephone
 call down during an
 unannounced off hours
 drill or exercise. (New)

	COLUMBIA	HERMANN	MONTGOMERY CITY	JEFF. CITY
		X		X Demos- trate at Hermann

**Scenario Dependent

1.5 EXERCISE SCENARIO

The plant is operating at 100% power. The plant has been on-line for 140 days. Total Core IV Equivalent Full Power Days (EFPD) is 128. At about 0330, the on-line Chemical and Volume Control System (CVCS) letdown demineralizer severely overheated and didn't automatically isolate from the Reactor Coolant System (RCS). As a result, Chemistry has been trending increasing RCS activity and chlorides.

At 0720, Chemistry reports that chlorides in the RCS have exceeded the Action 3 limit and the operating crew should commence a plant shutdown.

At 0735, an earthquake occurs causing a loss of the Cal-Bland transmission line, several plant equipment failures and varying damage to off-site areas in the EPZ. The Shift Supervisor declared an ALERT and activated the On-site Emergency Organization.

The transmission line surveillance airplane crashes into the Montgomery Switchyard causing both Montgomery/Callaway lines to trip resulting in a loss of off-site AC power and a reactor/turbine trip. After automatic start, the only available emergency diesel generator trips off and catches fire. The loss of the diesel results in a total loss of AC power. RCS leakage increases through the reactor coolant pump seals due to the loss of seal injection. The Medical Emergency Response Team (MERT) is dispatched to provide care to an equipment operator overcome by smoke at the diesel fire. A SITE AREA EMERGENCY is declared based on loss of all AC power for more than 15 minutes and all Emergency Organizations are activated.

The turbine-driven auxiliary feed pump trips and causes a loss of all steam generator feedwater. A GENERAL EMERGENCY is declared and a Protective Action Recommendation of shelter 2 mile radius and 5 miles downwind is made to the Missouri State Department of Health, Division of Radiological Health.

Increasing radiation levels in the Auxiliary Building and Unit Vent indicate the release of radioactive material to the environment. Investigation reveals the leakage from containment through a damaged piping penetration.

Following clearance of the fault on the Cal-Bland line or repair of diesel generator NE01, the operating crew restores power to one vital AC bus and begins restoring the plant to a stable condition. When an emergency repair team successfully repairs the damaged penetration, the release is stopped.

<u>Planned Time</u>	<u>Event</u>	<u>Actual Time</u>
0735	Earthquake	0735
0705	Alert	0738
0950	Site Area Emergency	0915
1100	General Emergency	1023
1215	Release Occurs	1200
1315	Time Jump	1331
1400	Relax PARS	1404
1500	Exercise Terminated	1446

1.6 STATE AND LOCAL RESOURCES

Listed below are organizations which planned to participate:

State of Missouri

1. Department of Public Safety, State Emergency Management Agency
2. Division of Health, Bureau of Radiological Health
3. Department of Social Services, Division of Family Services
4. Department of Public Safety, Missouri State Highway Patrol
5. Department of Public Safety, Missouri National Guard
6. Missouri Highway and Transportation Department
7. Missouri State Water Patrol
8. Missouri Department of Agriculture
9. Department of Natural Resources
10. Department of Conservation
11. Missouri Public Service Commission

Missouri Counties

1. Callaway County/Fulton
 - (a) County Court/Mayor
 - (b) Emergency Management Director
 - (c) County Sheriff
 - (d) Fulton Police Chief
 - (e) Fulton PIO
 - (f) Transportation Officer
 - (g) County Health Officer
 - (h) City Health Officer
 - (i) County Road & Bridge Superintendent
 - (j) Callaway Ambulance Service
 - (k) Callaway Memorial Hospital
2. Gasconade, Montgomery and Osage Counties
 - (a) Presiding Judge
 - (b) Emergency Management Director

- (c) County Sheriff
- (d) Public Information Officer
- (e) Transportation Officer
- (f) County Health Officer
- (g) County Road & Bridge Superintendent

- 3. Reception and Care Centers (other than noted above)
 - (a) American Red Cross
 - (b) Local Police/Security
 - (c) Ham Radio Operators

2 EXERCISE EVALUATION

2.1 MISSOURI STATE OPERATIONS

2.1.1 State Emergency Operations Center (SEOC)

The following objectives were planned for demonstration: 1, 2, 3, 4, 5, 12, 13, and 20. In addition, an area requiring corrective action from the last exercise called for a demonstration of new procedures regarding communication with FEMA during an exercise.

Objective Number 1, the ability to monitor, understand and use emergency classification levels, was fully demonstrated throughout the conduct of the exercise.

Objective Number 2, the ability to fully alert, mobilize, and activate personnel for both facility and field based emergency functions, was fully demonstrated.

At 0752, the SEOC received notification that an Alert had been declared. Mobilization of staff began immediately and calls were completed at 0817. By 0808, sufficient key personnel were present to declare the SEOC operational. At 0826, the SEMA staff who comprised the Forward Command Post (FCP) deployed to the Emergency Operations Facility (EOF). Objective Number 2 was fully demonstrated.

Objective Number 3, the ability to direct, coordinate, and control emergency activities, was fully demonstrated.

Briefings were held, and appropriate staff were involved in decision-making. Incoming and outgoing messages were logged, copied and distributed to the proper persons. In addition, they contacted FEMA at appropriate times, demonstrating their new operating procedures for this function. This satisfied an area requiring corrective action from the last exercise.

Objective Number 4, the ability to communicate with all appropriate locations, organizations and field personnel, was fully demonstrated through the use of primary and backup communication devices.

Objective Number 5, the adequacy of facilities, equipment, displays, and other materials to support emergency operations, was not adequately demonstrated. This inadequacy resulted from a failure to post, update and track protective action decisions. The status board clearly provides for recording both the protective action recommendations, and, where they differ, the protective actions actually decided upon for implementation. This

would have shown how the implemented protective actions differed from the protective action recommendations issued for Callaway County. This lack of posting and tracking of protective action decisions is an area that will require corrective action at the next exercise.

Objective Number 12, the ability to initially alert the public within the plume EPZ and begin dissemination of an instructional message within 15 minutes, was fully demonstrated.

At 0820, the State Highway Patrol (SHP) representative at the SEOC called the airport to place the Highway Patrol pilot on standby so he would be prepared to perform aerial alerting on the Missouri River. At 0918, the Site Area Emergency was announced over the dedicated line. The pilot was immediately notified. (Actual aerial alerting was not required at this exercise.) At 0926, the EBS Coordinator called the Counties and advised them to sound the sirens. He then called the EBS station and arranged for the release of message number 2, announcing the emergency and advising people to stay tuned.

The SHP dispatched two roving patrols within the 2 mile radius at 0955. When that area was evacuated, they assisted with access control (simulated). This limited activity constituted demonstration of Objective Number 20, access control.

Objective Number 13, the ability to coordinate the formulation and dissemination of accurate information and instruction to the public in a timely manner after the initial alert and notification has occurred, was not adequately demonstrated. This failure to demonstrate was related to the "timeliness" portion of the objective and occurred on two separate occasions.

The first happened at 1112, when Osage County requested that the EBS Coordinator release message number 7 to the EBS station. The message announced that students from Chamois school were being evacuated to Jefferson City. At 1205, the Forward Command Post issued a status update over the conference line. There was no mention of the Chamois school evacuation, so at 1212, Osage County asked the EBS Coordinator about the previously requested release of message 7. At this time, the Coordinator became aware of the omission, and released the message to EBS at 1215. The total time was 63 minutes.

The second event occurred at 1125, when the Coordinator received a request from Osage County to issue message 8 announcing sheltering from 5 to 10 miles in sectors H, J, and K. Instead of immediately releasing the message, the Coordinator called Gasconade County to advise them that their request for an EBS message regarding dairy cattle was inappropriate and should be handled through local channels. (The County Extension agent handles this by direct contact with dairy farmers.)

At 1129, the coordinator called the FCP and advised them of the difficulty with Callaway County landmark descriptions.

At 1131, the Coordinator then called Callaway County to determine how they would handle the new PARs which were announced at 1111. It was not until 1140 that he called the EBS station to broadcast the Osage County message regarding sheltering from 5 to 10 miles in sectors H, J, and K.

This failure to give immediate priority to a protective action message, along with the 63 minutes to issue the Chamois school evacuation message, constitute a failure to demonstrate Objective Number 13. This is an area requiring corrective action at the next exercise.

Summary: An inadequacy from the last exercise regarding demonstration of procedures to contact FEMA with details of the accident was corrected. Objectives fully demonstrated were: 1, 2, 3, 4, 12 and 20.

Objectives not adequately demonstrated were: 5 and 13.

Areas Requiring Corrective Action

1. There was a failure to post on the status board those protective actions actually implemented. The status board clearly had a category for this information. Posting and updating both protective action recommendations and protective actions actually implemented must be demonstrated at the next exercise to correct Objective Number 5.
2. Dissemination of protective action instructions to the public via EBS was not accomplished in a timely manner. The failure to demonstrate Objective Number 13 occurred when release of two EBS messages requested by Osage County was unduly delayed. At 1112, Osage County asked to release an EBS message regarding evacuation of Chamois School. It was not done until 1215. At 1125, Osage County called for sheltering in H, J, and K from 5 to 10 miles. The message was not released until 1140. The elapsed time of 15 minutes is not considered timely due to the fact that release of the message was delayed by other, less important activities which should not have taken priority over a protective action instruction. Timely release of all EBS messages will be an area requiring corrective action at the next exercise.

2.1.2 State Forward Command Post (FCP)

This function was performed at the EOF and operates in coordination with Missouri Department of Health, Bureau of Radiological Health.

Objectives to be demonstrated were: 1, 2, 3, 4, 5, 6, 11, and 33.

The FCP is the main coordination and communications arm of the response effort. By dedicated conference line (the "blue phone"), they are in contact with the State EOC and all county EOCs.

Objective Number 1, the ability to use emergency classification levels, was fully demonstrated.

Objective Number 2, the ability to fully alert, mobilize, and activate personnel for both facility and field based emergency functions, was fully demonstrated, when the FCP staff arrived at 0924 and immediately established their communication links to all participating organizations. A 24-hour roster was available.

Logs of all incoming and outgoing communications were kept, periodic briefings were held and protective action decisions were coordinated, fully demonstrating Objective Number 3, the ability to direct, coordinate and control emergency activities.

It should be noted that the licensee's Recovery Manager failed on one occasion to consult with SEMA and BRH before issuing a protective action recommendation to the counties over the blue phone. The counties were unaware that the SEMA had not been consulted. The FCP, after conferring with BRH, quickly concurred and prevented a confusing situation from developing.

Objective Number 4, the ability to communicate with all appropriate locations, organizations and field personnel using primary and backup means, was fully demonstrated.

Objective Number 5, the adequacy of facilities, equipment, displays and other materials to support emergency operations, was fully demonstrated, as status boards were well maintained in a timely manner.

All FCP staff members arrived wearing dosimetry that was in conformity with the Plan. All were aware of their dose limits and procedures if they were exceeded. Objective Number 6, the ability to continuously monitor and control emergency worker exposure, was fully demonstrated.

The following protective action recommendations were made:

- (a) 0934 - Place dairy animals within a 2 mile radius on stored feed.

- (b) 1023 - Evacuate 0-2 mile radius; shelter 2-5 miles in H, J, and K.
- (c) 1115 - Evacuate 2-5 miles and shelter 5-10 miles in H, J, and K.

Objective Number 11, the ability to make appropriate protective action decisions based on relevant factors, was fully demonstrated.

Objective Number 33, implementation of appropriate measures for controlled reentry and recovery, had only a minimal application at this facility. However, they carried out all relevant activities in accordance with the Plan, basing decisions on field data provided by controllers. At 1404, Osage and Callaway Counties were requested to draft EBS messages relaxing protective actions. At 1431, Osage County reported that their message had been released to EBS.

Objective Number 33 was fully demonstrated.

Summary: There were no prior inadequacies requiring corrective action. Objectives fully demonstrated: 1, 2, 3, 4, 5, 6, 11, and 33. There were no inadequacies.

2.1.3 Dose Assessment and Field Team Coordination

This function is located in the EOF. Objectives to be demonstrated: 2, 3, 4, 5, 6, 10, 11, 16, and 32. Additionally, the staff was required to perform a corrective action from the last exercise. This involved wearing and reading dosimetry.

The staff deployed from the Bureau of Radiological Health offices at 0820 and arrived at the EOF at 0900. All four members cleared security and arrived in their assigned area at 0905.

Objective Number 2, alert, mobilization, and activation, was fully demonstrated.

The Director of the Bureau of Radiological Health, of the Missouri Department of Health, was in charge throughout. Message logging and distribution was practiced, as well as appropriate coordination. Objective Number 3, the ability to direct, coordinate and control emergency activities, was fully demonstrated.

Both primary and secondary communication systems were used, fully demonstrating Objective Number 4, the ability to communicate with all appropriate locations.

Facilities and displays were excellent, and status boards were promptly updated. Objective Number 5, the adequacy of

facilities, equipment, displays and other materials to support emergency operations, was fully demonstrated.

All team members arrived with proper dosimetry, read it at appropriate intervals, and displayed knowledge of all required elements, fully demonstrating Objective Number 6, the ability to continuously monitor and control emergency worker exposure, and correcting an area requiring corrective action from the last exercise.

Both primary and backup dose projection methods were utilized correctly. However, it was apparent that there were errors in the plant's dose projection computer program. To verify the situation the Bureau of Radiological Health ran its backup procedures. The results verified their primary program and the projection originally made. At 1259, the licensee determined that they would rely on field readings.

The State of Missouri deployed only one field team which operated south of the river. However, it worked in conjunction with the two teams deployed by the licensee on the north side of the river. Coordination among all three teams was excellent. Objective Number 10, the ability to project dosage to the public via plume exposure, based on plant and field data, was fully demonstrated.

In the course of the exercise, the following protective actions were recommended by the Bureau of Radiological Health.

1. At 0925, (Site Area Emergency) it was recommended that dairy animals within a two mile radius be placed on stored feed.
2. At 1020, (General Emergency) it was recommended that the two mile radius be evacuated, and persons be sheltered from 2 to 5 miles in sectors H, J, and K; dairy animals in H, J, and K out to 10 miles were to be placed on stored feed.
3. At 1115, the utility went on the blue phone and, without consulting State officials, unilaterally announced its recommendation to evacuate H, J, and K from 2 to 5 miles, and shelter from 5 to 10 miles. Missouri officials concurred in this recommendation at 1120.

Objective Number 11, the ability to make appropriate protective action decisions, based on projected or actual dosage, EPA PAG's, availability of estimates and other relevant factors, was fully demonstrated.

At 1217, after conferring with plant staff, it was determined that the dose projection did not warrant the use of KI for emergency workers.

They again discussed the use of KI and once more decided it was not necessary. This negative decision was adequate to demonstrate the decision making portion of Objective Number 16, for recommending the use of KI to emergency workers, based on predetermined criteria.

Following a 24-hour time jump, field analysis showed that there were no restrictions to reentry.

The scenario called for a minimal demonstration of Objective Number 32, determination of appropriate measures for recovery and reentry, to permit the FCP to fulfill an undemonstrated portion of Objective Number 33. Bureau of Radiological Health staff correctly calculated the "maximally exposed individual" for areas impacted by the plume.

Objective Number 32, determination of appropriate measures for controlled reentry and recovery, was fully demonstrated.

Summary: The prior inadequacy, relating to Objective Number 6, was corrected. Objectives fully demonstrated were: 2, 3, 4, 5, 6, 10, 11, 16, and 32. There were no inadequacies.

2.1.4 Field Monitoring Team

Objectives to be demonstrated were: 2, 4, 6, 7, 8, and 9.

The licensee deployed two field teams, while the State deployed only one. FEMA had been informed of the possibility of the deployment of a single team, with a second team being deployed, if required. Two more teams were available and standing by, but were not needed. The one State team did not rendezvous at the EOF. Rather, they were directed immediately to a monitoring station south of the Missouri River that they would pass enroute from Jefferson City. As mentioned above, coordination of the three field teams was excellent, as the licensee and the State showed full cooperation.

The State team was comprised of two persons and mobilized in a timely fashion, leaving Jefferson City at 0830. A roster for 24-hour staffing was available at the EOF. However, due to the fact that only one team deployed, Objective Number 2, alerting, mobilizing and activating personnel for field based functions, is not considered to have been fully demonstrated. In future exercises, a minimum of two monitoring teams must be deployed.

The team used a mobile two-way radio and a portable radio to maintain contact with the EOF and by repeater, to the State EOC. All was in accordance with the Plan, fully demonstrating Objective Number 4, the ability to communicate with all appropriate locations, organizations, and field personnel.

Both team members were equipped with TLDs and three self-reading dosimeters, exceeding the requirements of the plan. They were aware of their dose limits for various missions and read their dosimeters at the appropriate times and recorded the values. Objective Number 6, the ability to continuously monitor and control emergency worker exposure, was fully demonstrated.

The team had all the monitoring equipment required by the plan, and a vehicle appropriate to the task. They demonstrated exceptional knowledge and skill in performing the procedures for determining field radiation measurements in fully demonstrating Objective Number 7.

The proper equipment and procedures for Objective Number 8, the measurement of airborne radioiodine concentration as low as 10^{-7} (.0000001) microcurie per cc in the presence of noble gases, were also fully demonstrated, as they used a dual channel analyzer, and silver zeolite and charcoal filters. Monitoring locations were reached without difficulty.

A sample was taken at 1145 and was picked up in the field by a courier who took the sample to the laboratory at the University of Missouri Research Reactor for analysis. This portion of Objective Number 9, the ability to obtain samples of particulate activity in the airborne plume, was fully demonstrated.

Summary: There were no inadequacies from prior exercises requiring correction. Objectives fully demonstrated were: 4, 6, 7, 8, and 9. Objective Number 2 was partially demonstrated.

2.1.5 Radiological Laboratory

This facility is the Environmental Laboratory, University of Missouri Research Reactor at Columbia, Missouri.

Objectives to be demonstrated were: 6, 9, and 34.

Procedures for sample analysis were demonstrated out of sequence with the exercise. However, a field sample was delivered in sequence with the exercise to demonstrate the time of transport. This sample had been taken in the field at 1145 and delivered by courier to the lab at 1312.

Both the courier and the lab staff wore TLDs and self reading dosimeters, fully demonstrating Objective Number 6.

The samples used for demonstration of lab procedures were received at 0952 and properly surveyed prior to admission into the lab. Proper procedures were observed and repeatable geometries were used.

Equipment needed for the analysis had all been properly calibrated in March 1989.

After completing the analysis, they faxed the results the staff at the FCP.

The prompt analysis portion of Objective Number 9 was fully demonstrated.

They also demonstrated a shift change, fully accounting for Objective Number 34.

Summary: No prior inadequacies were required for demonstration. Objectives fully demonstrated were: 6, 9, and 34.

2.1.6 Joint Public Information Center (JPIC)

This facility is located at the Union Electric building in Jefferson City, Missouri.

Objectives to be demonstrated were: 1, 2, 4, 5, 14, and 15.

Objective Number 1, the ability to monitor, understand and use emergency classification levels (ECLs) through appropriate implementation of emergency functions and activities corresponding to ECLs, as required by the scenario, was fully demonstrated.

State personnel arrived at the JPIC at 0830 to begin activation. At 0834, Union Electric staff declared the facility activated. State staff established rumor control functions since two calls had already been received. This would not normally be done until the Site Area Emergency, which occurred at 0925. At this time, the State declared the JPIC fully activated.

Objective Number 2, the ability to fully alert, mobilize, and activate personnel for facility functions was fully demonstrated.

Communication with all facilities was observed throughout the exercise, using multiple commercial phone lines and the fax machine. Objective Number 4, the ability to communicate with all appropriate locations, was fully demonstrated.

Objective Number 5, adequacy of facilities, equipment, displays and other materials to support emergency operations, was not adequately demonstrated.

There were two status boards in the JPIC; one upstairs and one downstairs. Neither one was updated in a timely fashion, with protective action updates exceeding 10 minutes. In addition, the boards were not updated together, with one often giving

different information than the other. Successful maintenance of the status boards will require corrective action at the next exercise.

Five media briefings were conducted at 0947, 1040, 1125, 1210 and 1324.

Press releases were prepared for distribution, and media kits were available. Information provided was accurate and timely. Objective Number 14, the ability to brief the media in an accurate, coordinated, and timely manner, was fully demonstrated.

Through the course of the exercise, the scenario generated many rumor calls. The staff handled them very professionally and provided accurate, up-to-date information. Five lines were available and used.

Objective Number 15, the ability to establish and operate rumor control in a coordinated and timely fashion, was fully demonstrated.

Summary: There were no inadequacies from past exercises requiring demonstration. Objectives fully demonstrated were: 1, 2, 4, 14, and 15. Objective not adequately demonstrated: 5.

Areas Requiring Corrective Action

3. The two status boards were not maintained in a timely manner, exceeding 10 minutes after PARs had been announced. Also, they differed from each other, reporting differing conditions and situations. Maintenance of status boards will be a required corrective action after the next exercise.

2.2 COUNTY OPERATIONS

2.2.1 Callaway County/Fulton Emergency Operations Center (CCEOC)

Three items from the last exercise requiring corrective actions are all related to Objective Number 6, the availability and distribution of dosimetry.

Objectives to be demonstrated were: 1, 2, 3, 4, 5, 6, 11, 12, 13, 16, 18, 19, and 20.

Objective Number 1, the ability to monitor, understand and use emergency classification levels (ECL) through the appropriate implementation of emergency functions and activities corresponding to ECLs, as required by the scenario, was fully demonstrated.

Notification of EOC staff began at 0751, when an earthquake struck the area, and an Alert was declared. Calls were completed by the sheriff's dispatcher at 0832. All staff reported by 0935, with all positions being filled. Objective Number 2, the ability to fully alert, mobilize and activate personnel, was fully demonstrated.

The Emergency Operations Center was managed throughout the exercise by the Callaway County Emergency Management Director (EMD). He involved staff in decision making and conducted briefings as the situation warranted. Messages were logged and distributed.

Objective Number 3, the ability to direct coordinate and control emergency activities, was fully demonstrated.

The primary communication link was the blue phone, which was a dedicated line connecting all EOCs and the EOF. This was used throughout the exercise. Backup communication was provided by law enforcement radio in accordance with the Plan.

Objective Number 4, communication with all appropriate locations, was fully demonstrated.

Displays, maps and status boards were well positioned for viewing by all staff, and were promptly updated. Facilities, equipment, displays and other materials to support emergency operations were all adequate to fully demonstrate Objective Number 5.

All EOC personnel were issued self reading dosimeters and TLDs. One hundred forty-five kits were available, as required by the Plan. Dosimeters were periodically read and values recorded. All these activities satisfied corrective actions required from the last exercise, and fully demonstrated Objective Number 6, the

ability to continuously monitor and control emergency worker exposure.

Objective Number 11, the ability to make appropriate protective action decisions, based on projected or actual dosage, EPA PAGs, availability of adequate shelter, evacuation time estimates and other relevant factors, was not adequately demonstrated.

This failure arose from the unwarranted decision to evacuate all of the Callaway County portion of the EPZ except for the City of Fulton. This decision was made at 1135, when the State had recommended evacuation of only the 2 mile radius and sectors H, J and K from 2 to 5 miles, with sheltering in sectors H, J and K from 5 to 10 miles. The decision was not warranted by the plant status or field measurements, and would place the evacuees at risk from automobile accidents and other considerations not warranted by Environmental Protection Agency protective action guides.

This erroneous protective action decision will require corrective action through an adequate demonstration at the next exercise.

Objective Number 12, the ability to alert the public within the 10 mile EPZ and begin dissemination of an instructional message within 15 minutes of a decision by appropriate State and/or local officials, was fully demonstrated. The only action required was the sounding of sirens, actuated by the Callaway County dispatcher. The State EOC in Jefferson City was responsible for releasing the instructional message to the EBS station.

The CCEOC received notification of the Site Area Emergency at 0918. Sirens were activated in coordination with the other three counties at 0927. The initial EBS message was released to the radio station at 0931. This is a total elapsed time of 13 minutes.

Objective Number 13, the ability to coordinate the formulation and dissemination of accurate information and instructions to the public in a timely manner after the initial alert and notification has occurred, was not adequately demonstrated.

The sequence of public instructions following the initial notification is as follows:

1. At 0929, the decision was made to place dairy animals on stored feed within a 2 mile radius. This was not announced over EBS, but rather was handled through direct notification by the County Agriculture Agent.

2. At 0932, the County decided to release a rumor control phone number over EBS. The State EBS coordinator said it would be aired at 0935.

3. At 1023, due to General Emergency, the State recommended the evacuation of the 2 mile radius, and sheltering from 2 to 5 miles in sectors H, J, and K. Dairy animals in sectors H, J, and K out to 10 miles should be placed on stored feed. At 1026, the County officials concurred in this decision. At 1029, the State EBS coordinator called on the blue phone to say that message 3A (announcement of General Emergency) would be aired at 1033. Sirens were activated at 1031. At 1041, the County officials decided to extend the State's recommended protective actions of shelter in H, J, and K from 2 to 5 miles to evacuate that area. At 1042, a copy of this EBS announcement was faxed to the State EOC for release. However, the prewritten landmark descriptions were not used. The EMD had developed descriptions of his own. At 1043, the County phoned the State and changed one landmark from "the Missouri River" to "the town of Mokane". These extemporaneously devised descriptions caused confusion at the State EOC, and prompted a call back to the Callaway County EMD. A lengthy exchange ensued, with the State finally convincing the County to use the prewritten landmark descriptions. The message was released over EBS at 1115. The elapsed time of 49 minutes (off-site decision time at 1026 and EBS release at 1115) is unacceptably long and was caused by the unwarranted use of extemporaneous landmark descriptions. This is a deficiency which must be corrected by amending the County Plans and/or Implementing Procedures to clarify the use of the prewritten landmark descriptions versus the option of developing landmark definitions as shown in SOP #7. It should also be noted that the message, while listing the reception centers, and the respective evacuation routes did not indicate which centers evacuees should go to depending on where they lived. This is an area requiring corrective action at the next exercise.

4. At 1135, the County, on its own initiative, decided to evacuate all of Callaway County within the EP2 with the exception of the City of Fulton. Though this message did use the prewritten landmark descriptions, subsectors C-1, 2, 3, and 6 were omitted. The EBS message did not indicate which centers evacuees should go to, per the brochure, depending on where they lived. Also, one of the routes was listed as Highway D West, and should have been "D North". This message was faxed to the State EOC and released over EBS at 1149. This

is an area requiring corrective action which must be rectified at the next exercise through the proper formulation of evacuation instructions.

5. At 1000, by prearrangement, the evacuation of Bush School in Fulton was called for. EBS message #7 was faxed to the State EOC. (This demonstration was not scenario driven and was done at a predetermined time.)
6. At 1055, it was decided to evacuate both the South Callaway School and the Riverview Nursing Home in Mokane. Two separate EBS messages, one for each facility, were faxed to the State EOC at 1058 and 1100. It should be noted here that no one notified the dispatcher to call these two facilities and tell them to implement their evacuation plans.

Objective Number 16, the ability to decide to recommend the use of KI to emergency workers based on predetermined criteria, as well as to distribute it, was fully demonstrated. At 1219, the Bureau of Radiological Health recommended the use of KI for emergency workers. Callaway County EOC made the notification immediately. All workers had the tablets in their kits. Supplies were adequate.

Objective Number 18, the ability and resources necessary to implement appropriate protective actions for the impacted permanent and transient plume EPZ population (including transit dependent persons, special needs population, handicapped and institutionalized persons), was not adequately demonstrated.

The inadequacy was rooted in the County's failure to notify the Riverview Nursing Home that they needed to evacuate.

They had been called at the General Emergency (along with all the special facilities on the list) and notified of the current ECL. However, when the EMD actually decided, at 1055, to evacuate this institution, he failed to inform the dispatcher to notify them to evacuate. This failure to notify the institution is a deficiency. This deficiency must be corrected through an amendment to the County Plans and/or Implementing Procedures which clearly assign responsibility for notifying the dispatcher to notify each affected special facility and inform them of the specific protective actions required for that facility.

It should be noted that the transportation coordinator did an excellent job of promptly determining needs and locating resources to facilitate the required evacuation.

Objective Number 19, the ability and resources necessary to implement appropriate protective actions for school children within the plume EPZ, was not adequately demonstrated.

As detailed above, in conjunction with the Riverview Nursing Home, there was a failure to contact the South Callaway School advising them to evacuate. They were, however, advised at 1056 of the General Emergency which had been declared at 1023. As noted above, this omission is a deficiency which must be corrected through changes in the Implementing Procedures assigning responsibilities for notifying the dispatcher to notify each affected special facility and inform them of the specific protective actions required for that facility.

There was a successful demonstration, however, of the evacuation procedures for Bush School in Fulton. This event was not scenario driven and began at 1000, by prearrangement. Proper notification to the School Superintendent's office was demonstrated. Evaluation of the subsequent actions at the school will be covered in section 2.2.2.

Objective Number 20, the organizational ability and resources necessary to control evacuation traffic flow and to control access to evacuated and sheltered areas, was not adequately demonstrated. Due to the large size of the affected areas, and the changes in protective actions, this was a complex objective to demonstrate. For the most part, it was well done. The lone demonstration failure occurred at 1127, when the same patrol car (403) was inadvertently dispatched to control both points P-11 and P-13. The error was noticed by the dispatcher who sent a message pointing out the problem. However, the Sheriff did not see the message immediately, and no corrective action was taken for over an hour. This left an evacuated area uncontrolled for an unnecessarily long period of time. This is an area requiring corrective action at the next exercise.

Upon inquiry, the Sheriff said that officers were instructed not to allow reentry of the public for any reason, if an evacuation has been ordered. However, the Plan recognizes "closed" and "open" access (Procedure 1, Supplement 1, Section IV.A.3.a. and II.B.1.) The "open" access allows entry to certain persons for such things as feeding livestock, obtaining medication, etc. The Sheriff recognized no such distinction. This (access control) is an area requiring corrective action through additional training and demonstration at the next exercise.

In addition to this exercise inadequacy, several plan inadequacies were also discovered. Those not impacting on the exercise will be addressed under separate cover; however, the following had a direct impact upon the exercise.

In the County Implementing Procedures, Procedure 1, Supplement 2, the map indicates five access control points (B-5, C-2, D-4, D-7, and N-5) that are not listed among the descriptions. Conversely, there are 11 access control points described (C-3,

C-4, C-5, G-5, P-7, P-8, P-0, Q-6, Q-7, Q-9, and Q-10), that are not shown on the map. These inconsistencies represent an area requiring corrective action, and must be corrected prior to the next exercise.

Summary: Corrective actions on Objective Number 6, required from the last exercise, were fully accomplished. Objectives fully demonstrated: 1, 2, 3, 4, 5, 6, 12, and 16. Objectives not adequately demonstrated were: 11, 13, 18, 19, and 20.

Deficiencies

1. It required 49 minutes to write and release to EBS the protective actions called for at the General Emergency. This resulted from the use of extemporaneously developed landmark descriptions instead of the prewritten ones.

The County Plans and/or Implementing Procedures must be amended to clarify the use of prewritten landmark descriptions versus the option of developing landmark definition as shown in SOP #7.

2. The County failed to notify the Riverview Nursing Home to activate their evacuation plan. The Implementing Procedures assign the responsibility for making the call to the dispatcher. However, it is not clear who will provide the information to the dispatcher. The procedures must be amended to account for this specific step.
3. As in deficiency 2 above, the County failed to notify South Callaway School to implement their evacuation plan. The Implementing Procedures must be revised to assign the responsibility to notify the dispatcher to notify each affected special facility and inform them of the specific protective actions required for that facility. The procedures must be amended to account for this specific step.
4. The County Plans state that the evacuation of schools will be carried out in accordance with the schools' own plans. In the case of Fulton School District #58, this means that students, K through 5, will be taken to a temporary relocation center (TRC) at the North Callaway High School. In the case of the South Callaway School, students, K through 5, would be evacuated to a TRC at the South Boone High School at Ashland.

If TRC's are to be utilized, the Plans must specifically state this, and must account for the following:

- a. A "shelter profile" of the TRC, confirming the existence of sufficient usable space to house the maximum number of students, faculty, and staff that might be expected there at any one time.
- b. A map showing the location of, and routes to, the TRC.
- c. If the TRC is not at least 5 miles beyond the plume exposure EPZ, it must have monitoring and decontamination capabilities.
- d. A description of the resources and procedures used to transport students from the TRC to the reception and care facility, and the maximum length of time a student would remain at the temporary facility.
- e. Letters of agreement (LOA) between the schools and the facility chosen as the TRC. The LOA must spell out the services the receiving school will provide.

All required changes were submitted on December 8, 1989 and approved.

Areas Requiring Corrective Action

4. The County officials decided to evacuate all of the Callaway County portion of the EPZ with the exception of the City of Fulton. This decision was unwarranted in view of State recommendation, plant status, field measurements and EPA PAG's.

This erroneous protective action decision will require corrective action through an adequate demonstration of Objective Number 11 at the next exercise.

5. In the course of issuing two EBS messages (at 1115 and 1149) several items were omitted. Neither message stated, as the brochure indicates, which evacuees should go to which reception centers. In the 1149 message the County failed to account for sectors C-1, 2, 3, and 6. The 1149 message also misstated evacuation route highway D North as highway D West.

Corrective action will be through an adequate demonstration of Objective Number 13 at the next exercise.

6. In demonstrating access control, car 403 was erroneously assigned to two control points, P11 and P13. When the error was discovered it was not rectified for over an hour, leaving sector P uncontrolled.

The Sheriff also had instructed officers not to permit reentry of the public for any reason. However, the plan recognizes a concept called "open" access permitting reentry for essential purposes.

Corrective action will be required through successful demonstration of Objective Number 20 at the next exercise.

7. In the area of access control, the Callaway County Implementing Procedures were found to contain inconsistencies. Procedure 1, Supplement 2, describes 11 access control points not shown on the map (C-3, C-4, C-5, G-5, P-7, P-8, P-9, Q-6, Q-7, Q-9, Q-10). Conversely, the map indicates 5 control points not contained in the description (B-5, C-2, D-4, D-7, N-5). These inconsistencies must be corrected in the 1990 Plan update.

2.2.2 Fulton School District #58 - Bush School

Bush School was chosen for demonstration of evacuation procedures independent of the exercise scenario. It was predetermined that this would occur at 1000.

There were no inadequacies from prior exercises requiring correction.

Objectives to be demonstrated were: 4, 6, 16, and 19.

Objective Number 4, the ability to communicate with all appropriate locations, organizations and field personnel was fully demonstrated. The communication chain began at 1000, when the Callaway County/Fulton EOC called the Fulton School District #58 Superintendent's office and announced that the district should activate its evacuation plan. The call was received by the district's Director of Support Services. Since only Bush School was demonstrating, he called the Bush principal at 1002. (In an actual emergency he would have contacted the other four schools in the district, as well.) At 1003, he called the bus garage and mobilized the buses, and at 1004, he notified the school board president.

Bush School is kindergarten through fifth grade with 490 students, 27 faculty and 6 other staff. The principal received the phone call from the Superintendent's office, but could also have been notified via the Plectron (indoor warning system). All classes were notified via intercom (simulated) to gather by classes in the gym for bus loading.

Buses arrived at the school (one bus for demonstration purposes) within 10 minutes. The driver was well aware of the evacuation routes and the location of the reception center. The

driver arrived with two self reading dosimeters, a TLD, and KI, in accordance with the Plan. He demonstrated a knowledge of their use and was aware of dose limits. However, he was unsure of the procedure if limits were reached or exceeded. He referred to his instruction card, but the information was not there. This is an area that will require corrective action through appropriate additions to the instruction card. This precluded an adequate demonstration of Objective Number 6, the ability to continuously monitor and control emergency worker exposure.

The driver was aware that KI was a part of his kit and that its use could be recommended. Instructions were in the dosimetry kit. The applicable portion of Objective Number 16, distribution and administration of KI, was fully demonstrated.

Objective Number 19, the ability and resources necessary to implement appropriate protective actions for school children within the plume EPZ, was fully demonstrated.

Summary: There were no inadequacies from prior exercises. Objectives fully demonstrated: 4, 16, and 19. Objective Number 6 was not adequately demonstrated. There were no areas from the previous exercise which required corrective action.

Area Requiring Corrective Action

8. Instruction cards for emergency workers must be amended to include instructions on procedures if dose limits are reached.

2.2.3 Gasconade County Emergency Operations Center (GCEOC)

Objectives to be demonstrated were: 1, 2, 3, 4, 5, 6, 11, 12, and 13.

In addition, there was an area requiring corrective action from the last exercise related to the provision of staffing rosters.

Objective Number 1, the ability to monitor, understand and use emergency classification levels, was fully demonstrated with all staff showing a knowledge of their significance and use.

Objective Number 2, the ability to alert, mobilize and activate personnel, was fully demonstrated. Mobilization calls were begun at 0740 and completed at 0800. All staff required by the Plan reported for duty, with full staffing being accomplished by 0900. The area requiring correction from the last exercise was satisfied by use of a roster of key staff and another for augmentation staff.

The Emergency Management Director (EMD) held briefings and consulted with staff, as required. Message logs were kept, and information flowed smoothly. Response actions were minimal, since no part of the County was affected by plume release. Objective Number 3, the ability to direct, coordinate and control emergency activities, was fully demonstrated.

The ability to communicate with all appropriate locations, Objective Number 4, was fully demonstrated, as primary and backup systems were used as the Plan indicates.

Objective Number 5, the adequacy of facilities, equipment, displays and other materials to support emergency operations, was fully demonstrated. Status boards and maps were adequate and were updated promptly.

Objective Number 6, the ability to continuously monitor and control emergency worker exposure, required limited demonstration since the plume did not affect the County, and workers were not required to enter the EPZ. However, dosimetry and KI were available as the Plan requires, and workers were knowledgeable in its use.

Objective Number 11, the ability to make appropriate protective action decisions, required limited demonstration since the County was not affected by the plume. They did, however, coordinate with the other counties and discuss possible actions in the event of a wind shift.

Objective Number 12, the ability to initially alert the public within the 10 mile EPZ and begin dissemination of an instructional message within 15 minutes of a decision by appropriate State and/or local officials, was fully demonstrated. They were notified of a Site Area Emergency at 0915. The only response required was activation of the alert signal, as the initial message was released through the State EOC. At 0928, at the Site Area Emergency, the sirens were activated at the order of the State EOC. They were again activated at the General Emergency at 1033.

Objective Number 13, the ability to coordinate the formulation and dissemination of accurate information and instructions to the public in a timely fashion after the initial alert and notification, required limited demonstration since there were no public instructions affecting the residents of Gasconade County after the initial message. They did, however, coordinate with the other counties and were aware of protective action instructions issued to the public.

Summary: The area requiring corrective action from the previous exercise (staffing rosters) was satisfied. Objectives fully demonstrated were: 1, 2, 3, 4, 5, and 12. Objectives 6,

11, and 13 were fully demonstrated within the limits of the scenario.

**2.2.4 Gasconade County Reception and Care Center (GCRC)
(Hermann High School, Hermann, Missouri)**

Objectives to be demonstrated were: 2, 3, 4, 6, 21, 22, 25, and 34. In addition, there were six areas requiring correction from the last exercise. They were: 1) Emergency workers doing monitoring and decontamination must have TLDs, 2) Monitoring staff must demonstrate a knowledge of levels for initiating decontamination, 3) The facility must be rearranged to provide better segregation between contaminated and decontaminated evacuees, 4) Proper bagging and labeling of contaminated clothing must be demonstrated, 5) Establishment of nursing station must be demonstrated, and 6) Monitors must demonstrate knowledge of decontamination levels for vehicles.

This facility was scheduled for demonstration outside the sequence of the exercise scenario. It occurred at 1800. Staff at the Gasconade County office of the Missouri Division of Family Services (DFS) were mobilized by a call from DFS in Jefferson City. They reported to the Hermann High School and began to activate the facility.

At 1912, they notified Jefferson City that they were fully staffed and activated and ready to receive evacuees.

Objective Number 2, the ability to fully alert, mobilize and activate personnel, was fully demonstrated.

The operation was ably managed by DFS staff assisted by a Red Cross support person. Briefings, message handling and record keeping were all demonstrated, fully accounting for Objective Number 3, the ability to direct, coordinate and control emergency activities.

Objective Number 4, the ability to communicate with all appropriate locations and organizations was also fully demonstrated; with backup radio being operated by ham radio operators.

Emergency workers monitoring evacuees were properly equipped with self reading dosimeters and TLDs. They displayed all required knowledge regarding dose limits and reporting procedures. Objective Number 6, the ability to continuously monitor and control emergency worker exposure, was fully demonstrated and accounted for an area requiring correction at the last exercise.

Objective Number 21, adequacy of procedures, facilities, equipment and personnel for the registration, radiological monitoring and decontamination of evacuees, was fully demonstrated.

Six monitors were present. A roster of the full staff was presented. Full staffing calls for 17 monitors. This number is more than adequate to monitor 20% of the evacuees, which amounts to 500 persons. The teams were made up of Missouri National Guard members and University of Missouri Research Reactor staff. They accounted for three areas requiring correction through demonstration of a knowledge of the decontamination levels for evacuees and vehicles; proper bagging and labeling of contaminated clothing; and proper layout of the facility to ensure segregation of uncontaminated and contaminated personnel.

A nursing station had also been established in the congregate care section, accounting for a past area requiring correction, while fully demonstrating Objective Number 22, the adequacy of equipment and personnel for congregate care. The facility, managed by DFS, was fully staffed in accord with the Plans, and also included a crisis counselor.

Objective Number 25, the adequacy of facilities, equipment, supplies, procedures and personnel for decontamination of emergency workers, equipment and vehicles and for waste disposal, was fully demonstrated, satisfying an area requiring correction from the last exercise. This was specifically accomplished as workers correctly identified the decontamination level for automobiles as 3 mR/hr. Proper decontamination procedures were also demonstrated.

Center management staff and monitoring supervisors all performed shift changes in the midst of monitoring and registering 29 evacuees. Objective Number 34, the ability to maintain staffing on a continuous 24-hour basis by an actual shift change, was fully demonstrated.

Summary: All six areas requiring correction from the previous exercise were successfully demonstrated. Objectives fully demonstrated were: 2, 3, 4, 6, 21, 22, 25, and 34.

2.2.5 Evacuee and Emergency Worker Monitoring and Decontamination - Hearnes Center

This facility did not exercise, however, there were five areas requiring correction from the last exercise. They were: 1) Hand held monitoring equipment used was not in accord with the Plan, 2) Proper procedures for use of PRM-7 micro-R-meter must be demonstrated, 3) Correct procedures for use of open window probe must be demonstrated, 4) Proper procedure in monitoring for internal vehicle contamination must be demonstrated, and 5) Proper procedures for vehicle monitoring must be demonstrated.

While these inadequacies were observed in 1988 at the Hearnes Center, the demonstration this year was allowed to be

conducted at the Gasconade County Reception and Care Center. The same crew from the Hearnese Center (1988) performed the demonstration of the applicable portions of Objective Number 25.

Equipment used was in accord with the Plan and had been calibrated within the required time. Proper procedures in the use of all equipment for monitoring vehicles was demonstrated, fully accounting for the applicable portions of Objective Number 25 to account for all five areas requiring corrective action.

2.2.6 Jefferson City Reception and Care Center

This facility did not exercise, however, there was one area requiring correction from the last exercise. There was no shift change by the center manager position in 1988. To accomplish this, it was agreed that the second shift manager could perform a shift change at the Gasconade County Reception and Care Center.

At approximately 1955, the DFS staff person from Cole County successfully assumed the management of the operation, demonstrating knowledge of procedures and staff. This completed demonstration of Objective Number 34, the ability to maintain staffing on a continuous 24-hour basis by an actual shift change and accounted for the area requiring corrective action from the last exercise.

2.2.7 Montgomery County Emergency Operations Center (MCEOC)

The following Objectives were planned for demonstration: 1, 2, 3, 4, 5, 6, 11, 12, and 13.

Objective Number 1, the ability to monitor, understand and use emergency classification levels (ECL), was fully demonstrated.

At 0735, the Sheriff's dispatcher began making activation calls and had contacted all EOC personnel by 0827. The facility was fully staffed in accord with the Plan by 0835, fully demonstrating Objective Number 2, the ability to fully alert, mobilize and activate personnel.

The County Emergency Management Director (EMD) in conjunction with the County Commissioner, was in charge of the response operation. Briefings were timely, message logs were maintained, and appropriate staff were involved in decision making. Objective Number 3, the ability to direct, coordinate and control emergency activities, was fully demonstrated.

Objective Number 4, the ability to communicate with all appropriate locations, organizations, and field personnel, was fully demonstrated through utilization of the primary telephone and backup radio communication links.

The EOC had been relocated since the last exercise to a much improved facility in the courthouse. Space, light, and ventilation were all vastly improved.

Maps and displays were adequate and quickly updated, fully demonstrating Objective Number 5, the adequacy of facilities, equipment, displays, and other materials to support emergency operations.

Since Montgomery County was not affected by the plume, there was no need to issue dosimetry to emergency workers. However, Objective Number 6, the ability continuously monitor and control emergency worker exposure, was demonstrated to a limited degree. Ample kits were available as prescribed by the Plan and workers were knowledgeable in their use.

Objective Number 11, the ability to make appropriate protective action decisions, required limited demonstration since the county was not affected by the plume. They did, however, coordinate with other counties and discuss possible actions if a wind shift occurred.

Objective Number 12, the ability to initially alert the public within the 10-mile EPZ and begin dissemination of an instructional message within 15 minutes of a decision by appropriate State and/or local officials, was fully demonstrated to the extent called for at this facility. Only activation of sirens was required, as the initial message was released to EBS by the State EOC.

Notification of Site Area Emergency was at 0917, and sirens were activated at 0927 by the Sheriff's dispatcher.

Objective Number 13, the ability to coordinate the formulation and dissemination of accurate information to the public, required limited demonstration since there were no public instructions affecting the residents of Montgomery County after the initial message. They did, however, coordinate with the other counties and were aware of protective action instructions issued to the public.

Summary: There were no areas requiring correction from past exercises. Objectives fully demonstrated were: 1, 2, 3, 4, 5, and 12. Objectives fully demonstrated within the limits of the scenario: 6, 11, and 13.

2.2.8 Osage County Emergency Operations Center (OCEOC)

There were two inadequacies from the past exercise requiring corrective action. The first called for a demonstration of the procedures for activating the sirens upon authorization by the

County Commissioner. The second required a demonstration of all telephone and radio communication instruments.

Objectives to be demonstrated were: 1, 2, 3, 4, 5, 6, 11, 12, 13, 16, 18, 19, 20, 32, 33, and 34.

Objective Number 1, the ability to monitor, understand and use emergency classification levels (ECLs) through appropriate implementation of emergency functions and activities corresponding to ECLs as required by the scenario, was fully demonstrated.

At 0742, staffing and activation began in response to the Alert that had been declared at 0738. Calls were completed at 0835. All required staff were in place by 0907. However, both the Plan and the implementing procedures call for the Sheriff's dispatcher to make all staff notification calls. In this exercise the calls were made by the County Commissioner. Failure of the staff to make notification in accordance with the Plan is an area requiring corrective action.

If these are the procedures that make the most effective use of personnel, the County Implementing Procedures must be changed to so state. Objective Number 2, alert, mobilization and activation of personnel, was not adequately demonstrated, although a staff roster was provided.

The County Commissioner, with the assistance of the Emergency Management Director, was in charge of the operation. Numerous briefings were conducted and messages were logged and distributed. Objective Number 3, the ability to direct, coordinate and control emergency activities, was fully demonstrated.

All phone lines were connected, made operational, and utilized, as well as backup radios. This corrected an inadequacy from the prior exercise. Objective Number 4, the ability to communicate with all appropriate organizations, locations, and field personnel, was fully demonstrated.

Objective Number 5, the adequacy of facilities, equipment, displays, and other materials to support emergency operations, was fully demonstrated, as maps and status boards were used and updated in a timely fashion.

Objective Number 6, the ability to continuously monitor and control emergency worker exposure, was not adequately demonstrated.

The failure to demonstrate was caused by the fact that both the Plan and the procedures neglected to provide emergency worker dosimetry kits to the driver of a church van used to evacuate disabled persons. This is an area that requires correction through changes in the Osage County Plan and/or Implementing Pro-

cedures, as well as a demonstration of this capability at the next exercise. All other emergency workers were properly equipped and demonstrated knowledge of the proper use of personal dosimetry and record keeping.

The only protective action which affected Osage County was called for at 1119. The State recommended that they shelter from 5 to 10 miles in sectors H, J, and K. The county officials decided that it would be easier to call for shelter in all of that portion of the county that is in the 10-mile EPZ. In effect, this added only one other sector, G.

Objective Number 11, the ability to make appropriate protective action decisions based on projected or actual dosage, EPA PAGs, and other relevant factors, was fully demonstrated.

The only portion of Objective Number 12 for which Osage County was responsible, was activation of the siren system. This was not adequately demonstrated. At 0918, they received notice over the blue phone from the plant that a Site Area Emergency had been declared at 0915. At 0923, they received notice of Site Area Emergency from the State FCP and, as requested, sounded sirens at 0927. The State EOC released the message to the EBS station at 0928. However, the Plan calls for the County Commissioner to authorize the sounding of sirens. This did not occur. The dispatcher who received the message did not have time to seek authorization prior to siren activation. The sirens were sounded within the prescribed timeframe, which corrected the portion of the previous area requiring corrective action relative to timeliness. However, this same failure to follow the Plan occurred at the last exercise and was the second portion of the area requiring corrective action. This problem still remains to be corrected. The Plan should be changed to permit the dispatcher to automatically act on the State's request without needing county authorization. In any case, an adequate demonstration of the Plan will be required at the next exercise.

Objective Number 13, the ability to coordinate the formulation and dissemination of accurate information and instructions to the public in a timely fashion, after the initial alert and notification has occurred, was fully demonstrated.

At 1110, the County Officials decided to call for a precautionary evacuation of Chamois School, and issued an EBS message to that effect at 1112, announcing that the students were being taken to the relocation center at Lincoln University in Jefferson City.

At 1119, the county received the State's recommendation to shelter in sectors H, J, and K from 5 to 10 miles. The county expanded the area to sector G, which was equivalent to subsector 01, or all of Osage County within the EPZ. This EBS message was

phoned to the State at 1130. It should be noted that the prewritten landmark description for this subsector (message 8-0 in the Plan) is not precisely the same as the one written in the public information brochure. While both describe the area, the one in the brochure is clearer, especially for transients. It is recommended that the prewritten message be changed. At 1420, the State reported that the Bureau of Radiological Health had determined that it was safe to reenter the evacuated area and terminate sheltering. At 1430, they prepared EBS messages #11 and #12 relaxing the previously imposed protective actions.

Objective Number 16, the decision to recommend the use of KI for emergency workers, as well as to distribute and administer it, was fully demonstrated. KI was not called for, so the decision was negative. However, adequate supplies of KI were available and staff were knowledgeable in KI use, had the decision been positive.

Objective Number 18, the ability and resources necessary to implement appropriate protective actions for the impacted permanent and transient plume EPZ population (including transient-dependent persons, special needs population, handicapped persons and institutionalized persons), was not adequately demonstrated.

From 1020 to 1125, the EOC staff contacted mobility impaired persons, and others requiring transportation assistance. Six persons were determined as needing transportation. However, in giving the names to the driver, one person was omitted and would not have been picked up. The van and driver were from St. John's Methodist Church. This transportation resource is not listed in the Plan. Neither was there any provision to train and equip the driver as an emergency worker. Further, there was no letter of agreement with the church, documenting this resource. If this resource is to be used, the Plan must be amended and the Letter of Agreement obtained; dosimetry and KI, as well as training in their use, must be provided (see Objective Number 6). This is an area requiring corrective action through a successful demonstration of Objective Number 18, at the next exercise.

Objective Number 19, the ability and resources necessary to implement appropriate protective actions for school children within the plume EPZ, was not adequately demonstrated.

The plans and procedures call for special facilities (schools included) to be notified by the dispatcher at the Alert, the Site Area Emergency and the General Emergency. Chamois school was not notified until 0954, 39 minutes after the Site Area Emergency declaration.

At 1110, the County officials decided that Chamois school should be precautionarily evacuated. At 1112, an EBS message was phoned to the State EOC. The schools were not actually informed

that they should activate their evacuation plan until 1118. The school should have been consulted with coordination occurring prior to the EBS message being released. This lack of timely communication with the school is an area requiring corrective action through demonstration at the next exercise.

Objective Number 20, the organizational ability and resources necessary to control evacuation traffic flow and to control access to evacuated and sheltered areas, was not adequately demonstrated.

The Plan and Standard Operating Procedures (SOP) distinguishes between access control and traffic control, the later being simply directing the flow of traffic. However, SOP Number 1 must be amended to clarify that access control must be established when sheltering is called for as well as during an evacuation. This is an area requiring corrective action through demonstration of Objective Number 20, at the next exercise.

After a time jump at 1315, the State recommended the relaxation of protective actions. The county had very little role in demonstrating Objective Number 32, determining appropriate measures for controlled reentry and recovery. Essentially, they concurred with the State, fully demonstrating their limited role in this objective.

Each representative reviewed and documented what actions would be taken for their response roles in the upcoming days. They then went on to formulate the appropriate EBS messages announcing an end to the sheltering previously imposed. This fully demonstrated Objective Number 33, the ability to implement appropriate measures for controlled reentry and recovery.

Throughout the exercise, all positions demonstrated a shift change. Incoming staff were given briefings and showed good continuity.

Objective Number 34, the ability to maintain staffing on a continuous 24 hour basis by an actual shift change, was fully demonstrated.

Summary: One inadequacy cited at the prior exercise was fully satisfied. The second inadequacy was corrected for timeliness, but the County still failed to follow its Plan regarding authorization for siren sounding and remains an open area requiring corrective action at the next exercise. Objectives fully demonstrated were: 1, 3, 4, 5, 11, 13, 16, 32, 33, and 34. Objectives not adequately demonstrated were: 2, 6, 12, 18, 19, and 20.

Areas Requiring Corrective Action

9. Activation calls were made by the County Commissioner instead of the dispatcher, as the Plan dictates. A demonstration of the proper activation provisions in accordance with the Plan will be required at the next exercise.
10. A church van was used to evacuate disabled persons. This resource was not listed in the Plan and the driver did not have access to, nor training in the use of dosimetry. If this resource will continue to be used, the driver must receive emergency worker equipment, and training in its use. A demonstration will be required at the next exercise.
11. At 0927, the dispatcher sounded the siren at the Site Area Emergency without obtaining authorization from the County Commissioner. This also occurred at the last exercise. This must be corrected by a proper demonstration of the siren activation procedure as set forth in the Plan at the next exercise.
12. In providing transportation for mobility impaired, one person who had been identified as needing transportation, was omitted in the simulated pick up. Also, the transportation resource (church van) was not listed in the Plan. The Plan must be rectified and a successful demonstration performed at the next exercise. If the van is used, documentation of this resource plus a letter of agreement must be developed for the Plan.
13. The Plan calls for special facilities (schools included) to be notified at the Alert. Chamois school was not called until 39 minutes after the Site Area Emergency had been declared. A demonstration of timely alerting of special facilities will be required at the next exercise.
14. Standard Operating Procedure (SOP) Number 1 must be amended to clarify that access control must be established when sheltering is called for as well as during evacuation.

A demonstration of proper knowledge of this aspect of the Plan will be required at the next exercise.

Area Recommended For Improvement

1. It is recommended that prescribed landmarks in EBS messages be rewritten to match the public information brochure, which is clearer and easier to understand, especially for transients.

2.2.9 Osage R-1 School

The school is located in the town of Chamois and is kindergarten through 12 with 229 students.

There were no inadequacies from prior exercises requiring correction. Objectives to be demonstrated were: 4, 6, 16, and 19.

Communication links between the County EOC, the Superintendent's office, and the school principal are commercial telephone. Backup from the EOC to the school is by indoor warning system (Plectron). Objective Number 4, the ability to communicate with all appropriate locations, was fully demonstrated.

Objective Number 6, the ability to continuously monitor and control emergency worker exposure, was not adequately demonstrated due to a shortage of dosimetry kits. While there were seven buses available, there were only five kits. There should be one dosimetry kit, including KI, for each bus. With this exception, all the equipment was in accord with the Plan, and drivers were knowledgeable regarding its use. They were also aware of dose limits and procedures if limits are reached or exceeded. Providing the two additional kits is a required corrective action.

Objective Number 16, the ability to distribute and administer KI, was fully demonstrated, as supplies of the drug were part of each driver's kit. Adequacy of the supplies was addressed under Objective Number 6, concerning the number of kits available. The decision, however, was not to recommend its use.

Objective Number 19, the ability and resources necessary to implement appropriate protective action for school children within the plume EPZ, was fully demonstrated.

The Superintendent received notification from the County EOC at 0953, that a Site Area Emergency had been declared. At 1120, he received notice to begin evacuation. The Principal and teachers were informed and buses mobilized in a timely fashion.

Bus drivers who were interviewed were aware of evacuation routes and the location of the reception center in Jefferson City.

They were in possession of proper dosimetry, KI and record cards, which were obtained at the bus garage prior to departure. They were aware of dose limits and the proper use of KI.

Summary: There were no areas requiring correction from prior exercises. Objectives fully demonstrated were: 4, 16, and 19. Objective Number 6, was not adequately demonstrated.

Area Requiring Corrective Action

15. A dosimetry kit must be provided for each school bus at the school bus garage. Currently, there are seven buses and only five kits.

2.2.10 Callaway Community Ambulance

Objectives to be demonstrated were: 4, 6, 16, and 23. There were no inadequacies from prior exercises.

The ambulance was summoned to a simulated auto accident in an area of possible contamination. The crew donned protective clothing while enroute. They also demonstrated communications using the ambulance radio and the hand held backup. Objective Number 4, the ability to communicate with the hospital while enroute, was fully demonstrated.

The crew had proper personal dosimetry and were aware of proper procedures for its use. KI was available, but not called for. Objective Number 6, proper exposure control, and Objective Number 16, the distribution of KI, were both fully demonstrated.

Upon arrival at the scene, the area was quickly surveyed, as well as the patient. He was determined to be in stable medical condition. Contamination control measures were taken and wounds were treated. The patient was wrapped, placed in the ambulance, and transported to the hospital.

Objective Number 23, the adequacy of vehicles, equipment, procedures, and personnel for transporting contaminated, injured or exposed individuals to the hospital, was fully demonstrated.

Summary: Objectives fully demonstrated were: 4, 6, 16, and 23.

2.2.11 Callaway Community Hospital

Objectives to be demonstrated were: 6 and 24. There were no inadequacies from prior exercises.

Hospital staff receiving the contaminated injured patient were equipped with self-reading dosimeters and TLDs. They were read and recorded at proper intervals. Objective Number 6, ability to monitor and control exposure, was fully demonstrated.

The staff monitored the patient upon arrival and decontaminated the wound using saline solution. Contaminated clothing and waste were disposed of properly. A health physicist from the plant was on hand to oversee the activity. This is not in conformity with the Plan, which states that the hospital has the capability to handle contamination. The Plan must be amended to reflect the role of the health physicist. Written procedures were available and used. The ambulance crew was also surveyed before being released from the area. Objective Number 24, the adequacy of medical facility's equipment, procedures, and personnel for handling contaminated, injured or exposed individuals, was not adequately demonstrated due to the presence of the plant health physicist.

Summary: There were no inadequacies from prior exercises. Objective fully demonstrated: 6. Objective not adequately demonstrated: 24.

Area Requiring Corrective Action

16. There was a health physicist from the plant giving assistance to the hospital staff. This is not in conformity with the Plan which states that the hospital alone will have the capability to handle a contaminated injured patient.

The Plan must be changed to reflect this situation, and the letter of agreement changed as well.

**3 SUMMARY OF DEFICIENCIES
AND
AREAS REQUIRING CORRECTIVE ACTION**

DEFICIENCIES

COUNTY OPERATIONS

Callaway County/Fulton Emergency Operations Center (CCEOC)

1. It required 49 minutes to write and release to EBS the protective actions called for at the General Emergency. This resulted from the use of extemporaneously developed landmark descriptions instead of the prewritten ones.

The County Plans and/or Implementing Procedures must be amended to clarify the use of prewritten landmark descriptions versus the option of developing landmark definition as shown in SOP #7.

2. The County failed to notify the Riverview Nursing Home to activate their evacuation plan. The Implementing Procedures assign the responsibility for making the call to the dispatcher. However, it is not clear who will provide the information to the dispatcher. The procedures must be amended to account for this specific step.
3. As in deficiency 2 above, the County failed to notify South Callaway School to implement their evacuation plan. The Implementing Procedures assign the responsibility of making the call to the dispatcher. However, it is not clear who will provide the information to the dispatcher. The procedures must be amended to account for this specific step.
4. The County Plans state that the evacuation of schools will be carried out in accordance with the schools' own plans. In the case of Fulton School District # 58, this means that students, K through 5, will be taken to a temporary relocation center (TRC) at the North Callaway High School. In the case of the South Callaway School, students, K through 5, would be evacuated to a TRC at the South Boone High School at Ashland.

If TRC's are to be utilized, the Plans must specifically state this, and must account for the following:

- a. A "shelter profile" of the TRC, confirming the existence of sufficient usable space to house the maximum number of students, faculty, and staff that might be expected there at any one time.
- b. A map showing the location of, and routes to, the TRC.
- c. If the TRC is not at least 5 miles beyond the plume exposure EPZ, it must have monitoring and decontamination capabilities.
- d. A description of the resources and procedures used to transport students from the TRC to the reception and care facility, and the maximum length of time a student would remain at the temporary facility.
- e. Letters of agreement (LOA) between the schools and the facility chosen as the TRC. The LOA must spell out the services the receiving school will provide.

All required changes were submitted on December 8, 1989 and approved.

AREAS REQUIRING CORRECTIVE ACTION

MISSOURI STATE OPERATIONS

State Emergency Operations Center (SEOC)

1. There was a failure to post on the status board those protective actions actually implemented. The status board clearly had a category for this information. Posting and updating both protective action recommendations and protective actions actually implemented must be demonstrated at the next exercise to correct Objective Number 5.

Joint Public Information Center (JPIC)

3. The two status boards were not maintained in a timely manner, exceeding 10 minutes after PARs had been announced. Also, they differed from each other, reporting differing conditions and situations. Maintenance of status boards will be a required corrective action after the next exercise.

COUNTY OPERATIONS

Callaway County/Fulton Emergency Operations Center (CCEOC)

4. The County officials decided to evacuate all of the Callaway County portion of the EPZ with the exception of the City of

Fulton. This decision was unwarranted in view of the State recommendation, plant status, field measurements and EPA PAG's.

This erroneous protective action decision will require corrective action through an adequate demonstration of Objective Number 11 at the next exercise.

5. In the course of issuing two EBS messages (at 1115 and 1149) several items were omitted. In the second message the County failed to account for sectors C-1, 2, 3, and 6. Neither message stated, as the brochure indicates, which evacuees should go to which centers. Also, they did not indicate which evacuation routes went to which center. The 1149 message misstated evacuation route highway D North as highway D West.

Corrective action will be through an adequate demonstration of Objective Number 13 at the next exercise.

6. In demonstrating access control, car 403 was erroneously assigned to two control points, P11 and P13. When the error was discovered it was not rectified for over an hour, leaving sector P uncontrolled.

The Sheriff also had instructed officers not to permit re-entry of the public for any reason. However, the plan recognizes a concept called "open" access permitting reentry for essential purposes.

Corrective action will be required through successful demonstration of Objective Number 20 at the next exercise.

7. In the area of access control, the Callaway County Implementing Procedures were found to contain inconsistencies. Procedure 1, Supplement 2, describes 11 access control points not shown on the map (C-3, C-4, C-5, G-5, P-7, P-8, P-9, Q-6, Q-7, Q-9, Q-10). Conversely, the map indicates 5 control points not contained in the description (B-5, C-2, D-4, D-7, N-5). These inconsistencies must be corrected in the 1990 Plan update.

Fulton School District #58 - Bush School

8. Instruction cards for emergency workers must be amended to include instructions on procedures if dose limits are reached.

Osage County Emergency Operations Center (OCEOC)

9. Activation calls were made by the County Commissioner instead of the dispatcher, as the Plan dictates. A demonstra-

tion of the proper activation provisions in accordance with the Plan will be required at the next exercise.

10. A church van was used to evacuate disabled persons. This resource was not listed in the Plan and the driver did not have access to, nor training in the use of dosimetry. If this resource will continue to be used, the driver must receive emergency worker equipment, and training in its use. A demonstration will be required at the next exercise.
11. At 0927, the dispatcher sounded the siren at the Site Area Emergency without obtaining authorization from the County Commissioner. This also occurred at the last exercise. This must be corrected by a proper demonstration of the siren activation procedure as set forth in the Plan at the next exercise.
12. In providing transportation for mobility impaired, one person who had been identified as needing transportation, was omitted in the simulated pick up. Also, the transportation resource (church van) was not listed in the Plan. The Plan must be rectified and a successful demonstration performed at the next exercise. If the van is used, documentation of this resource plus a letter of agreement must be developed for the Plan.
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14. Standard Operating Procedure (SOP) Number 1 must be amended to clarify that access control must be established when sheltering is called for as well as during evacuation.

A demonstration of proper knowledge of this aspect of the Plan will be required at the next exercise.

Osage R-1 School

15. A dosimetry kit must be provided for each school bus at the school bus garage. Currently, there are seven buses and only five kits.

Callaway Community Hospital

16. There was a health physicist from the plant giving assistance to the hospital staff. This is not in conformity with the Plan which states that the hospital alone will have the capability to handle a contaminated injured patient.

The Plan must be changed to reflect this situation, and
letter of agreement changed as well.