U.S. Department of Homeland Security
500 C Street, SW
Washington, DC 20472

OCT 12 2007

FEMA

Ronald J. Reynolds, Director
State Emergency Management Agency (SEMA)
2302 Militia Drive
P.O. Box 116
Jefferson City, MO 65102

Dear Mr. Reynolds:

Enclosed is a copy of the Final Exercise Report dated October 1, 2007, for the Callaway Nuclear Power Plant (CNPP), plume phase exercise of the offsite radiological emergency response plans site-specific to the CNPP. The State of Missouri and the risk jurisdictions of Callaway, Gasconade, Montgomery and Osage Counties participated in the exercise. The Federal Emergency Management Agency (FEMA) Region VII Office prepared the Final Exercise Report.

There were no Deficiencies, two Areas Requiring Corrective Action (ARCA), and two planning issues identified as a result of the exercise. The two ARCAs identified and two prior issues were successfully re-demonstrated.

Based on the results of the August 8, 2007 exercise, the offsite radiological emergency response plans and preparedness for the State of Missouri and the affected local jurisdictions, site specific to CNPP, can be implemented and are adequate. The plans provide reasonable assurance that appropriate measures can be taken in the event of a radiological emergency at the site.

If you have any questions, please contact Ron McCabe at (816) 283-7007.

Sincerely,

Vanessa E. Quinn
Acting Director
Technological Hazards Division
National Preparedness Directorate

Enclosure

AX45
IX49

**U.S. Department of Homeland Security**
500 C Street, SW
Washington, DC 20472

FEMA

OCT 12 2007

Mr. Elmo Collins
Administrator
U.S. Nuclear Regulatory Commission Region IV
Texas Health Resources Tower
611 Ryan Plaza, Suite 400
Arlington, TX 76011-4005

Dear Mr. Collins:

Enclosed is a copy of the Final Exercise Report dated October 1, 2007, for the Callaway Nuclear Power Plant (CNPP), plume phase exercise of the offsite radiological emergency response plans site-specific to the CNPP. The State of Missouri and the risk jurisdictions of Callaway, Gasconade, Montgomery and Osage Counties participated in the exercise. The Federal Emergency Management Agency (FEMA) Region VII Office prepared the Final Exercise Report.

There were no Deficiencies, two Areas Requiring Corrective Action (ARCA), and two planning issues identified as a result of the exercise. The two ARCAs identified and two prior issues were successfully re-demonstrated.

Based on the results of the August 8, 2007 exercise, the offsite radiological emergency response plans and preparedness for the State of Missouri and the affected local jurisdictions, site specific to CNPP, can be implemented and are adequate. The plans provide reasonable assurance that appropriate measures can be taken in the event of a radiological emergency at the site.

If you have any questions, please contact Ron McCabe at (816) 283-7007.

Sincerely,

Vanessa E. Quinn
Acting Director
Technological Hazards Division
National Preparedness Directorate

Enclosure

Cc: (w/enclosure)

Mr. Anthony C. McMurtray
Chief, Licensing and Regulatory Improvements Section
Emergency Preparedness Directorate
Division of Preparedness and Response
Office of Nuclear Security and Incident Response
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Document Control
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

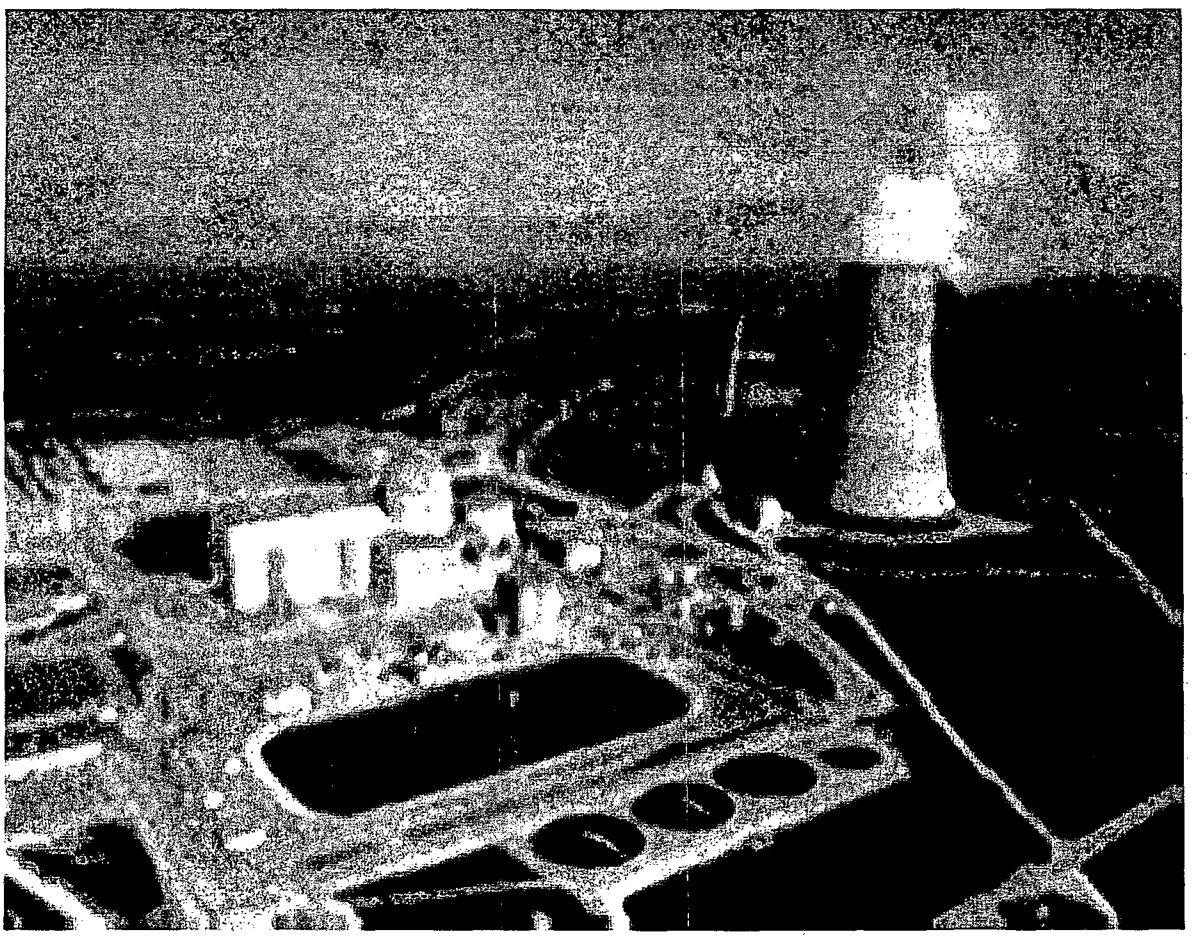
# Callaway Nuclear Power Plant

# Exercise Report - 2007-08-08

## Final Report - Radiological Emergency Preparedness (REP) Program

## 2007-10-01

FEMA




# FEMA

## Exercise Report

## Callaway Nuclear Power Plant

## Exercise Date: 2007-08-08

## Report Date: 2007-10-01

U.S. DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

REP Program

9221 Ward Parkway, Suite 300

Kansas City, MO 64114

# Table of Contents

Appendices

# 1. Executive Summary

On August 8, 2007, an exercise was conducted in the plume exposure pathway emergency planning zone (EPZ) around the Callaway Nuclear Power Plant by the Federal Emergency Management Agency (FEMA), Region 7. In addition, on June 26 and July 25 and 26, 2007, out-of-sequence drills were conducted for the Callaway Community Hospital, Callaway County Ambulance Service, Hermann Middle School Reception and Care Center and Gasconade R-1 Schools. Additional out-of-sequence exercises for Callaway County Jail, Missouri School for the Deaf, Rosa Parks Juvenile Center, Fulton Treatment Center, Osage R-1 Schools, North Callaway R-1 Schools and South Callaway R-2 Schools were conducted on July 25. The purpose of the exercises and drills was to assess the level of State and local preparedness in responding to a radiological emergency. The exercise and drills were held in accordance with FEMA's policies and guidance concerning the exercise of State and local radiological emergency response plans and procedures.

The previous exercise at this site was conducted on May 4, 2005. The qualifying emergency preparedness exercise for final plan approval was conducted on March 21, 1987.

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

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

This report contains the evaluation of the biennial exercise.

The State and local organizations, except where noted in this report, demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There were no Deficiencies and two Areas Requiring Corrective

Action (ARCAs) identified as a result of this exercise. Both 2007 ARCAs were closed through redemonstration on the day of the exercise. Two ARCAs identified during the 2005 exercise were resolved and closed through redemonstration on the day of this exercise. Two planning issues were identified; one was resolved and closed immediately while the second is detailed in Appendix 5 of this report.

The initial Protective Action Recommendation (PAR) was based on plant conditions and a small radioactive airborne materials release from the plant that began at 0830, which triggered the declaration of a Site (Area) Emergency. It was sent as a SENTRY message from the Emergency Operations Facility (EOF) by the utility at 0830, prior to the arrival of the Forward Command Post (FCP) team from SEMA, and included the statement that the Missouri Department of Health requested placing of milk animals on stored feed and water in the entire 10 mile EPZ (Emergency Planning Zone). The GAR issued a confirmatory PAR notification that was faxed to the State EOC and counties at 0906. Recommended protective actions included sheltering (remaining indoors and monitoring Emergency Alert System messages) in addition to placing milk animals on stored feed and water within a 10-mile radius around the plant. It also recommended access control to two miles in all directions around the plant. The PAR also included a recommendation to advise Federal agencies of the potential for a request for assistance. County Emergency Management Directors were advised to review the locations of special populations out to 10 miles, and access restrictions of the air and river traffic were recommended.

The second PAR, issued by the Forward Command Post (FCP) was based on field monitoring team data from which a dose of 1.32 rem TEDE (total effective dose equivalent) was projected at or near the exclusion area boundary (EAB). The PAR was issued at 0955 and recommended evacuation of the population within two miles in all directions from the plant and five miles downwind in Sectors C, D, E, and F, sheltering to 10 miles in all directions, controlling access within a radius of five miles, a temporary embargo on agricultural products and activities within a 10-mile radius as well as continuance of the earlier restriction on animal feed and water. Additionally, it was recommended that County Emergency Management Directors consider evacuation of special populations out to 10 miles.

The third PAR, issued at 1055, extended the embargo on agricultural products and activities out to 50 miles in sectors C, D, E, and F, recommended placing milk animals on stored feed and water out to 50 miles in those sectors; and included the recommendation for emergency workers to ingest potassium iodide (KI). A conference

call, initiated by the Governor's Authorized Representative, involving officials of the counties and the State Emergency Operations Center, was held at 1102 to discuss the recommendation to ingest KI, to suggest that any emergency worker refusing to take KI should be replaced for the duration of the emergency, and to stress documenting that the KI recommendation was made.

The fourth and final PAR, issued at 1219, was based on a significant increase (controller inject) in the projected radioactive release resulting in doses exceeding the protective action guides (PAG) as far as five miles away from the plant, together with a shift in wind direction. The PAR included extending the evacuated area to five miles in all directions from the plant and 10 miles downwind, involving Sectors C, D, E, F, and G; and extending access control to 10 miles in all directions from the plant.

# 2. Introduction

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

On March 1, 2003, FEMA became part of the US Department of Homeland Security.

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

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

* Taking the lead in offsite emergency planning and in the review and evaluation of radiological emergency response plans (RERP) and procedures developed by state and local governments.

* Determining whether such plans and procedures can be implemented on the basis of evaluation of exercises of the plans and procedures conducted by state and local governments.

* Responding to requests by the U.S. Nuclear Regulatory Commission (NRC) pursuant to the Memorandum of Understanding between the NRC and FEMA (Federal Register, Vol. 58, No. 176, September 14, 1993).

* Coordinating the activities of the following federal agencies with responsibilities in the radiological emergency planning process:

- U.S. Department of Commerce
- U.S. Nuclear Regulatory Commission
- U.S. Environmental Protection Agency

- U.S. Department of Energy
- U.S. Department of Health and Human Services
- U.S. Food and Drug Administration
- U.S. Public Health Service
- U.S. Department of Transportation
- U.S. Department of Agriculture
- U.S. Department of the Interior

Representatives of these agencies serve as members of the FEMA Region 7 Regional Assistance Committee (RAC), which is chaired by FEMA.

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

A REP exercise was evaluated on August 8, 2007, by FEMA Region 7 to assess the capabilities of State and local offsite emergency preparedness organizations in implementing their RERPs and procedures to protect the public during a radiological emergency involving the Callaway Nuclear Power Plant. The purpose of this exercise report is to present the exercise results and findings on the performance of the offsite response organizations (OROs) during a simulated radiological emergency.

The findings presented in this report are based on the evaluations of the Federal evaluator team with final determinations made by the FEMA Region 7 Regional Assistance Committee (RAC) Chairperson and the program's National Office in Washington.

The criteria utilized in the FEMA evaluation process are contained in the following:

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

* Radiological Emergency Preparedness Exercise Evaluation Methodology, as published in the Federal Register, September 12, 2001 and April 25, 2002.

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

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

# 3. Exercise Overview

Contained in this section are data and basic information relevant to the August 8, 2007, exercise and related out-of-sequence drills to test the offsite emergency response capabilities in the area surrounding the Callaway Nuclear Power Plant. This section of the exercise report includes a description of the plume Emergency Planning Zone (EPZ), a listing of all participating jurisdictions and functional entities evaluated, and a tabular presentation of the time of the actual occurrence of key exercise events and activities.

## 3.1. EPZ Description

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

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

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

## 3.2. Exercise Participants

Agencies and organizations of the following jurisdictions participated in the Callaway Nuclear Power Plant exercise:

State Jurisdictions

State Emergency Management Agency

Missouri Department of Public Safety

Missouri National Guard / Adjutant General
Missouri State Highway Patrol
Missouri Department of Health and Senior Services
Missouri Deparment of Social Services, Division of Family Services
Missouri Department of Transportation
Missouri Public Service Commission
Missouri Department of Agriculture
Missouri Department of Natural Resources
Missouri Department of Insurance
Missouri Department of Conservation
Missouri State Water Patrol
Missouri Environmental Health and Safety
Missouri School for the Deaf
Rosa Parks Juvenile Center
Fulton Treatment and Diagnostic Center

Risk Jurisdictions

County of Callaway / County Commission
Callaway County Emergency Management Agency
City of Fulton / Mayor and City Manager
Callaway County Sheriff
City of Fulton Police Deparment
Callaway County 911 Center
City of Fulton Engineer's Office
Callaway County Public Works
Callaway County Health Department
Callaway County Family Services
Callaway County Fire Department
North Callaway R-1 Schools
South Callaway R-2 Schools
Callaway County Jail
County of Gasconade / County Commission
Gasonade County Emergency Management Agency
Gasconade County Sheriff's Department
Gasconade County Health Department
Gasconade County Road and Bridge Department
Hermann Fire Department
Hermann Police Department

Gasconade County 911 Center
Gasonade County R-1 Schools
County of Montgomery / County Commission
Montgomery County Emergency Management Agency
Montgomery City Fire Department
Montgomery County Health Department
Montgomery County Road and Bridge Department
Montgomery County Ambulance Service
County of Osage / County Commission
Osage County Emergency Management Agency
Osage County Sheriff's Department
Linn Fire Department
Osage County EMS
Osage County Health Department
Osage County Road and Bridge
Osage County Highway Deparment
Osage County R-1 Schools

Support Jurisdictions

Hermann Middle School Reception and Care Center

Private Jurisdictions

American Red Cross
Callaway Community Hospital
Callaway County Ambulance Service
Radio Station KTXY, Columbia

Federal Jurisdictions

Department of Homeland Security / Federal Emergency Management Agency
Nuclear Regulatory Commission

## 3.3. Exercise Timeline

The Exercise Timeline indicates the times recorded for various activities and decisions at each of the evaluated locations. A disparity in times is normal given the need for message transmissions and decision-making at the various locales.

## Table 1 - Exercise Timeline

## DATE: 2007-08-08, SITE: Callaway Nuclear Power Plant, MO

| Emergency Classification Level or Event | Time Utility Declared | MO State EOC | MO Dose Assessment/FTC | Missouri Field Team A | Missouri Field Team B | MO JPIC | MO Forward Command Post/EOF |
|---|---|---|---|---|---|---|---|
| Unusual Event | 0711 | 0719 | 0715 | 0715 | 0715 | 0719 | 0715 |
| Alert | 0727 | 0735 | 0738 | 0752 | 0753 | 0735 | 0731 |
| Site Area Emergency | 0830 | 0838 | 0847 | 0851 | 0852 | 0840 | 0832 |
| General Emergency | 0952 | 1000 | 0954 | 1001 | 1002 | 1005 | 0954 |
| Simulated Rad. Release Started | 0827 | 0903 | 0847 | 0837 | 0837 | 0903 | 0837 |
| Simulated Rad. Release Terminated | 1202 | 1228 | 1202 | 1238 | 1239 | 1228 | 1202 |
| Facility Declared Operational | | 0830 | 0855 | 0732 | 0733 | 0830 | 0855 |
| Declaration of State of Emergency | | 0915 | N/A | N/A | | 0915 | N/A |
| Exercise Terminated | | 1304 | 1240 | 1245 | 1245 | 1304 | 1240 |
| Early Precautionary Actions: Dairy Animals on Covered Feed/Water | | 0838 | 0847 | N/A | | N/A | 0838 |
| 1st Protective Action Decision: Site Area Emergency | | 0847 | 0838 | | | 0847 | |
| 1st Siren Activation | | 0853 | N/A | | | N/A | |
| 1st EAS or EBS Message | | 0857 | N/A | | | N/A | |
| 2nd Protective Action Decision: General Emergency, Evacuate C1, C3, C4, and C11 | | 1017 | 0955 | | | 1030 | |
| 2nd Siren Activation | | 1032 | N/A | | | 1033 | |
| 2nd EAS or EBS Message | | 1035 | N/A | | | 1035 | |
| 3rd Protective Action Decision: Agricultural Embargo | | 1102 | 1055 | | | 1140 | |
| 3rd Siren Activation | | N/A | N/A | | | N/A | |
| 3rd EAS or EBS Message | | N/A | N/A | | | N/A | |
| 4th Protective Action Decision: General Emergency, Modification of Evacuation Area | | 1242 | 1219 | | | | |
| 4th Siren Activation | | 1258 | N/A | | | | |
| 4th EAS or EBS Message | | 1259 | N/A | | | | |
| KI Administration Decision: | | 1102 | 1055 | 0854 | 0855 | 1210 | 1102 |

## Table 1 - Exercise Timeline
## DATE: 2007-08-08, SITE: Callaway Nuclear Power Plant, MO

| Emergency Classification Level or Event | Time Utility Declared | EAS Station - KTXY | Callaway County/Fulton EOC | Gasconade County EOC | Montgomery County EOC | Osage County EOC |
|---|---|---|---|---|---|---|
| Unusual Event | 0711 | | 0718 | 0722 | 0718 | 0718 |
| Alert | 0727 | | 0734 | 0737 | 0734 | 0734 |
| Site Area Emergency | 0830 | | 0838 | 0840 | 0838 | 0838 |
| General Emergency | 0952 | | 1000 | 1000 | 1000 | 1000 |
| Simulated Rad. Release Started | 0827 | | 0827 | 0904 | 0903 | 0903 |
| Simulated Rad. Release Terminated | 1202 | | 1232 | | 1232 | |
| Facility Declared Operational | | 0808 | 0800 | 0803 | 0753 | 0836 |
| Declaration of State of Emergency | | | 1109 | 0946 | 0948 | 0945 |
| Exercise Terminated | | | 1300 | 1300 | 1259 | 1300 |
| Early Precautionary Actions: Dairy Animals on Covered Feed/Water | | | | | 0838 | 0838 |
| 1st Protective Action Decision: Site Area Emergency | | | 0847 | 0847 | 0847 | 0847 |
| 1st Siren Activation | | | 0853 | | | |
| 1st EAS or EBS Message | | 0857 | | | | |
| 2nd Protective Action Decision: General Emergency, Evacuate C1, C3, C4, and C11 | | | 1017 | 1017 | | 1005 |
| 2nd Siren Activation | | | 1032 | | | |
| 2nd EAS or EBS Message | | 1035 | | | | |
| 3rd Protective Action Decision: Agricultural Embargo | | | 1102 | 1102 | 1104 | 1125 |
| 3rd Siren Activation | | | | | | |
| 3rd EAS or EBS Message | | | | | | |
| 4th Protective Action Decision: General Emergency, Modification of Evacuation Area | | | 1242 | 1240 | 1237 | 1242 |
| 4th Siren Activation | | | 1258 | | | |
| 4th EAS or EBS Message | | 1259 | | | | |
| KI Administration Decision: | | | 1102 | 1110 | 1109 | 1135 |

# 4. Exercise Evaluation and Results

Contained in this section are the results and findings of evaluation of all jurisdictions and functional entities that participated in the June and July, 2007, out-of-sequence drills and the August 8, 2007, exercise to test the off-site emergency response capabilities of State and local governments in the 10-mile EPZ surrounding the Callaway Nuclear Power Plant.

Each jurisdiction and functional entity was evaluated on the basis of its demonstration of exercise criteria delineated in the FEMA Exercise Evaluation Areas and Criteria, as published in the Federal Register, September 12, 2001. Detailed information on the exercise criteria and the extent-of-play agreement for this exercise is found in Appendix 3 of this report.

## 4.1. Summary Results of Exercise Evaluation

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

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

D - Deficiency assessed

A - Area(s) Requiring Corrective Action (ARCA) assessed or unresolved ARCA(s) from prior exercise(s)

A1 - Area(s) Requiring Corrective Action (ARCA) assessed and corrected.

N - Not Demonstrated (Reason explained in sub¬section B)

Blank - Not scheduled for demonstration or not assigned to this location/function

Table 2 - Summary of Exercise Evaluation (2 pages)

| DATE: 2007-08-08<br>SITE: Callaway Nuclear Power Plant, MO<br><br>A: ARCA, D: Deficiency, M: Met | | MO State EOC | MO Dose Assessment/FTC | Missouri Field Team A | Missouri Field Team B | MO JPIC | MO Forward Command Post/EOF | EAS Station - KTXY | Missouri School for the Deaf | Fulton Treatment Center | Callaway County/Fulton EOC | South Callaway R-II Schools |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Emergency Operations Management | | | | | | | | | | | | |
| Mobilization | 1a1 | M | M | M | M | M | M | | | | M | |
| Facilities | 1b1 | | | | | M | | | | | M | |
| Direction and Control | 1c1 | M | | | | | M | | | M | M | |
| Communications Equipment | 1d1 | M | M | M | M | M | M | | | | M | |
| Equip & Supplies to support operations | 1e1 | M | M | M | M | M | | | M | M | M | M |
| Protective Action Decision Making | | | | | | | | | | | | |
| Emergency Worker Exposure Control | 2a1 | | M | | | | | | | | M | |
| Radiological Assessment and PARs | 2b1 | | M | | | | | | | | | |
| Decisions for the Plume Phase -PADs | 2b2 | | M | | | | M | | | | M | |
| PADs for protection of special populations | 2c1 | | | | | | M | | | | M | |
| Rad Assessment and Decision making for the Ingestion Exposure Pathway | 2d1 | | | | | | | | | | | |
| Rad Assessment and Decision making concerning Relocation, Reentry, and Return | 2e1 | | | | | | | | | | | |
| Protective Action Implementation | | | | | | | | | | | | |
| Implementation of emergency worker exposure control | 3a1 | | M | M | M | | | | | M | M | M |
| Implementation of KI decision | 3b1 | | M | M | M | | | | | M | M | M |
| Implementation of protective actions for special populations - EOCs | 3c1 | | | | | | | | | M | M | |
| Implementation of protective actions for Schools | 3c2 | | | | | | | | M | | M | M |
| Implementation of traffic and access control | 3d1 | M | | | | | | | | | M | |
| Impediments to evacuation are identified and resolved | 3d2 | | | | | | | | | | M | |
| Implementation of ingestion pathway decisions - availability/use of info | 3e1 | | | | | | | | | | | |
| Materials for Ingestion Pathway PADs are available | 3e2 | | | | | | | | | | | |
| Implementation of relocation, re-entry, and return decisions. | 3f1 | | | | | | | | | | | |
| Field Measurement and Analysis | | | | | | | | | | | | |
| Adequate Equipment for Plume Phase Field Measurements | 4a1 | | | M | M | | | | | | | |
| Field Teams obtain sufficient information | 4a2 | | M | | | | | | | | | |
| Field Teams Manage Sample Collection Appropriately | 4a3 | | | M | M | | | | | | | |
| Post plume phase field measurements and sampling | 4b1 | | | | | | | | | | | |
| Laboratory operations | 4c1 | | | | | | | | | | | |
| Emergency Notification and Public Info | | | | | | | | | | | | |
| Activation of the prompt alert and notification system | 5a1 | M | | | | | | M | | | M | |
| Activation of the prompt alert and notification system - Fast Breaker | 5a2 | | | | | | | | | | | |
| Activation of the prompt alert and notification system - Exception areas | 5a3 | | | | | | | | | | M | |
| Emergency information and instructions for the public and the media | 5b1 | M | | | | M | | M | | | M | |
| Support Operations/Facilities | | | | | | | | | | | | |
| Mon / decon of evacuees and emergency workers, and registration of evacuees | 6a1 | | | | | | | | | | | |
| Mon / decon of emergency worker equipment | 6b1 | | | | | | | | | | | |
| Temporary care of evacuees | 6c1 | | | | | | | | | | | |
| Transportation and treatment of contaminated injured individuals | 6d1 | | | | | | | | | | | |

Table 2 - Summary of Exercise Evaluation (Continued. page 2/2)

| DATE: 2007-08-08<br>SITE: Callaway Nuclear Power Plant, MO<br><br>A: ARCA, D: Deficiency, M: Met | | North Callaway R-I Schools | Callaway County Jail | Rosa Parks Juvenile Center | Callaway Community Hospital | Callaway County Ambulance District | Gasconade County EOC | Gasconade R-1 Public Schools | Hermann Reception and Care Center | Montgomery County EOC | Osage County EOC | Osage R-1 School District |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Emergency Operations Management | | | | | | | | | | | | |
| Mobilization | 1a1 | | | | | | M | | M | M | M | |
| Facilities | 1b1 | | | | | | | | | | | |
| Direction and Control | 1c1 | | | | | | M | | M | M | M | |
| Communications Equipment | 1d1 | | | | | | M | | M | M | M | |
| Equip & Supplies to support operations | 1e1 | M | M | M | M | M | M | M | M | M | M | M |
| Protective Action Decision Making | | | | | | | | | | | | |
| Emergency Worker Exposure Control | 2a1 | | | | | | M | | | M | M | |
| Radiological Assessment and PARs | 2b1 | | | | | | | | | | | |
| Decisions for the Plume Phase -PADs | 2b2 | | | | | | M | | | M | M | |
| PADs for protection of special populations | 2c1 | | | | | | M | | | M | M | |
| Rad Assessment and Decision making for the Ingestion Exposure Pathway | 2d1 | | | | | | | | | | | |
| Rad Assessment and Decision making concerning Relocation, Reentry, and Return | 2e1 | | | | | | | | | | | |
| Protective Action Implementation | | | | | | | | | | | | |
| Implementation of emergency worker exposure control | 3a1 | | M | M | M | M | M | | M | M | M | M |
| Implementation of KI decision | 3b1 | | M | M | | M | M | | | M | M | M |
| Implementation of protective actions for special populations - EOCs | 3c1 | | M | M | | | M | | | M | M | |
| Implementation of protective actions for Schools | 3c2 | M | | | | | M | M | | M | M | M |
| Implementation of traffic and access control | 3d1 | | | | | | M | | | M | M | |
| Impediments to evacuation are identified and resolved | 3d2 | | | | | | M | | | M | M | |
| Implementation of ingestion pathway decisions - availability/use of info | 3e1 | | | | | | | | | | | |
| Materials for Ingestion Pathway PADs are available | 3e2 | | | | | | | | | | | |
| Implementation of relocation, re-entry, and return decisions. | 3f1 | | | | | | | | | | | |
| Field Measurement and Analysis | | | | | | | | | | | | |
| Adequate Equipment for Plume Phase Field Measurements | 4a1 | | | | | | | | | | | |
| Field Teams obtain sufficient information | 4a2 | | | | | | | | | | | |
| Field Teams Manage Sample Collection Appropriately | 4a3 | | | | | | | | | | | |
| Post plume phase field measurements and sampling | 4b1 | | | | | | | | | | | |
| Laboratory operations | 4c1 | | | | | | | | | | | |
| Emergency Notification and Public Info | | | | | | | | | | | | |
| Activation of the prompt alert and notification system | 5a1 | | | | | | M | | | M | M | |
| Activation of the prompt alert and notification system - Fast Breaker | 5a2 | | | | | | | | | | | |
| Activation of the prompt alert and notification system - Exception areas | 5a3 | | | | | | M | | | M | M | |
| Emergency information and instructions for the public and the media | 5b1 | | | | | | M | | | M | M | |
| Support Operations/Facilities | | | | | | | | | | | | |
| Mon / decon of evacuees and emergency workers, and registration of evacuees | 6a1 | | | | | | | | M | | | |
| Mon / decon of emergency worker equipment | 6b1 | | | | | | | | M | | | |
| Temporary care of evacuees | 6c1 | | | | | | | | | | | |
| Transportation and treatment of contaminated injured individuals | 6d1 | | | | M | M | | | | | | |

# 4.2. Status of Jurisdictions Evaluated

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

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

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

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

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

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

Prior Issues - Unresolved - Description of ARCAs assessed during prior exercises that were not resolved in this exercise. Included is the reason the ARCAs remain unresolved and recommended corrective actions to be demonstrated before or during the next biennial exercise.

The following are definitions of the two types of exercise issues that are discussed in this report.

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

plant."

* An Area Requiring Corrective Action (ARCA) is defined by FEMA as "an observed or identified inadequacy of organizational performance in an exercise that is not considered, by itself, to adversely impact public health and safety."

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

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

* Plant Site Identifier - A two or three-digit number corresponding to the Utility Billable Plant Site Codes.

* Exercise Year - The four digits of the year the exercise was conducted.

* Criterion Number - A three-digit number corresponding to the criteria numbers in the FEMA Exercise Evaluation Areas.

* Issue Classification Identifier - (D = Deficiency, A = ARCA). Only Deficiencies and ARCAs are included in exercise reports.

* Exercise Issue Identification Number - A separate two (or three) digit indexing number assigned to each issue identified in the exercise.

# 4.2.1. State Jurisdictions

## 4.2.1.1. Missouri State Emergency Operations Center

Criterion 1.a.1: This criterion was adequately demonstrated in accordance with the existing plans and procedures and the negotiated extent of play agreement.

The State of Missouri Emergency Management Agency (SEMA) and Emergency Operations Center (EOC) are located in the Missouri National Guard Headquarters in Jefferson City, Missouri. The State EMA Control Room (Operations) Supervisor received a call on a dedicated voice computer programmed phone line with a fax modem (Sentry system) from the Callaway Nuclear Plant Simulator that an Unusual Event Classification Level (ECL) had been declared at 0711 hours. A completed emergency information Sentry Form notification from the Callaway Plant was received at 0719. The SEMA Duty officer verified the emergency using the callback number provided by the Callaway Plant. At 0723 hours, the SEMA Control Room Supervisor notified Department of Health and Senior Services, Governor's Authorized Representative, Department of Public Safety, National Guard, Public Service Commission and FEMA Region VII Office of the Unusual Event. SEMA Control Staff also completed entering emergency information into the E-Team Duty Log Reporting Network (E-Team). Notification to the State agencies was completed at 0730 hours. At 0735 hours, the Control Room Supervisor received a call on a dedicated Sentry system phone line from the Callaway Nuclear Plant Simulator that an Alert Event Classification Level (ECL) had been declared at 0727 hours. A completed emergency information Sentry form from the Callaway Plant was also received at 0735. State EOC personnel that were in the SEMA Building were notified by a paging system to report to the EOC for duty. A personnel pager notification was also initiated at 0739 hours. Four SEOC staff members were tasked as phone operators to assist with notification of emergency information for the Montgomery, Gasconade, Callaway and Osage Counties EOCs. At 0743 hours, all personnel notifications were transferred to the SEOC phone operators. Key personnel and full activation of the State Emergency Operations Center (EOC) was completed at 0830 hours. Key personnel and contact information were listed in a 24-hour staffing roster that was available at the SEOC. Key personnel confirmed their duty positions by logging into the E-Team Duty Log Reporting Network.

In accordance with the extent of play agreement, participants were not pre-positioned at the State EOC. Key personnel began arriving at 0719 hours to assume their roles and responsibilities. The facility was declared operational at 0830 hours when the Department of Public Safety Representatives and State EOC personnel arrived at the facility completing the staffing of key functions. Responsibility for notification was transferred from the SEMA Control Room to the State EOC at 0830 hours. Notification of the Site Area Emergency ECL at 0838 hours and the General Emergency ECL at 1000 hours was received at the SEMA over the dedicated voiced programmed phone line (Sentry System) from the Callaway Plant Emergency Operations Facility (EOF).

SEMA provided copies of the completed emergency information Sentry form to the State EOC personnel, for the Unusual Event, Alert, Site, GE and any updates that also included Protective Action Recommendations and plant status.

Criterion 1.c.1: This criterion was adequately demonstrated pursuant to the negotiated Extent of Play and existing plans and procedures.

The Operations Officer was in charge of the Missouri EOC and did a good job of command and control throughout the event. He was in routine contact with the GAR and Missouri Department of Health Radiation Program at the EOF during the exercise leading to good discussions and an excellent flow of information. The Operations Officer reviewed all EAS messages and press releases without delay, making several improvements before distribution. The Operations Officer reviewed all PARs and routinely held conference calls with the counties to make sure they had the necessary information and agreed with the recommended actions. The Operations Officer did a good job in meeting with the various groups as they arrived at the EOC and periodically met with them during the exercise as needed. These groups included but were not limited to the Joint Information Center lead, Highway Patrol,Water Patrol, utility representatives and NRC representatives. He routinely met with the state spokesperson in preparation for the press briefings and to answer questions raised by the press. All the necessary plans and procedures were available and all organizations at the EOC monitored and recorded their activities in "ETeam". The Operations Officer also did a good job in overseeing the sounding of the sirens and associated statements.

The Operations Officer held numerous announcements/briefings for the state EOC holding them at 0744, 0807, 0840, 0907, 1005, 1047 and at the end of the exercise. During the briefings he provided updates on plant conditions, PARs, release information, event status and meteorological data. He then asked if anyone had a question. It is recommended that some, if not all, briefings include asking each organization to give an update of what they are doing. While each group monitors "ETeam", items can be missed and including all in the briefings would keep everyone more up to date on what is occurring.

Recommendation:

During EOC briefings have all organizations give an update of their activities. This will help keep everyone current on the big picture and help ensure that all groups have a

good understanding of what is taking place. Do not rely strictly on "ETeam" to keep those in the EOC up to date.

Criterion 1.d.1: This criterion was adequately demonstrated in accordance with the existing plans and procedures and the negotiated extent of play agreement.

The primary communications system used for initial notification to the State Emergency Management Agency's (EMA) Control Center is a dedicated voice programmed telephone line with a fax modem (Sentry System) from the Callaway Nuclear Plant. If this system fails, commercial telephones provide a means for backup communication. A third means of communications between the Callaway Plant and the State is by State Highway Patrol, Troop F, 24-hour dispatch center. If necessary, the State Police can relay the information to the State EOC by two-way radio or telephone. The Callaway Plant EOF successfully used the dedicated voice programmed telephone line to communicate with the State EOC Control Center.

Communications systems used by the State EMA to notify the risk Counties EOC and other organizations included commercial telephone, pager, facsimile, and the federal national radio system, which includes the low band; high band DV HF radios; repeaters; AM-FM standard broadcast; and equipped with an 800 MHz two-way radio (Motorola Centracom) and backup two-way radio (Motorola Astro). The State EOC personnel were equipped with landline telephone extensions that incoming phone calls were managed by the Control Room staff. Telephones were also used to activate the rumor control hotlines and phone operators. These hotlines and their back-up lines were used throughout the duration of the exercise.

Cell phones and pagers were also used primarily to mobilize State EOC participants. The commercial telephone was used throughout the exercise to communicate with the Office of the Governor, the Joint Public Information Center (JPIC), the EOF, and numerous State, local, and private sector organizations. The E-TEAM was also relied upon for internal communications during the exercise. Numerous facsimiles were sent and received. The operability of the back-up two-way radio system was successfully demonstrated with the EOF and Callaway County for the sounding of the sirens.

Criterion 1.e.1: This criterion was adequately demonstrated pursuant to the negotiated Extent of Play and existing plans and procedures.

The Missouri Emergency Operations Center (EOC) was set up with several television

receivers that could be used to show items like the press briefing, several clocks visible to all, laptops or connections for all participants, fax machine, copiers, state maps and maps showing the EPZ and IPZ. All participants had access to and monitored "ETeam" throughout the event in an effort to record activities and keep abreast of events. Several displays were projected on the front wall for everyone to monitor and were updated in a timely manner throughout the day. These displays included a plant data display that included items like weather, plant status, release information, protective actions, plume arrival time and so on. The other displays included the event emergency action level and a map showing the EPZ that included the projected and actual plume after the release began. The map also included evacuation areas and plume arrival times.

The EOC had a more than adequate supply of radiation detection instruments. All those ready for use included a calibration sticker that included the source check range for the instrument and the date of the last calibration. Instruments are repaired and calibrated on-site when necessary. The inventory of instruments included: 800 CDV 700's with GM probe; 77 with pancake probe; and 610 CDV 715s.

The EOC had 180 dosimetry packets available. Each packet included a 0-5R Arrow-Tech Self Reading Dosimeter (SRD); a Luxel OSL; dosimetry record card with instructions to read the SRD every 30 minutes and a 1R administrative limit; 14 KI tablets with a date of August, 2013; KI instructions with record card. Several SRD chargers were available and 300 additional packets were on-site missing only the Luxel. In addition, numerous additional SRDs were available including: 300-5R, about 700-100mR, 100-10R, 250-20R and 400-100R. Drift check records for all SRDs in the packets were observed with all being up to date.

Criterion 3.d.1: This criterion was adequately demonstrated pursuant to the negotiated Extent of Play and existing plans and procedures.

The Coast Guard was asked to close the river to commercial traffic at 0915 and at that time the Missouri Water Patrol put additional staff on call in case they were needed. At the site area, the Water Patrol advised their staff and the Coast Guard about the upgrade to make certain the necessary resources were available.

The Highway Patrol is the lead in the Missouri EOC for identifying access control points (ACP) and their representatives were proactive throughout the event. They did a good job in coordinating with the Missouri Water Patrol and the Missouri Conservation

Department in the EOC as well as with the Patrol Troops in St. Louis (Troop C) and in Jefferson City (Troop F). At the site area, the Patrol representatives called Troop F and C to increase the number of officers in the area and begin staging officers in order to respond quickly. At 0910, they began an effort to determine where Traffic Control Points (TCP) should be established at the 10 mile radius to prevent entry to the area. They used the EPZ map on the wall and a Missouri road map to determine where the points should be located. They determined where the TCPs should be established and recorded the information on "ETeam". They then provided the information to Troop F, C, and their Headquarters Office. It was very difficult for the Highway Patrol to use a state road map to determine TCPs. They should be provided with an EPZ map that includes all roads and can be written on to locate the TCPs. Maps used by the field team coordinator would work well.

At 0950, they called Troop C and F to have TCPs set up at the 10 mile radius. Troop F is responsible for contacting the county sheriffs to have the points established as the counties are the lead. At 1010 the Patrol called Troop F to confirm that staff were available to help with evacuation if needed. At that time they were informed that an agreement was in place with Callaway County and that the County would take care of TCPs for the first 48 hours. At 1130 the Patrol called 3 additional troops to put additional officers on standby in case they were needed.

The Highway Patrol Officers never heard back as to the exact location of where TCPs were established and thought that they had been established at the 10 mile radius. It is recommended that the Officers receive additional training on how the process works and that the counties are responsible with the Patrol supporting the county sheriffs. In addition, they need to receive feedback on where the TCPs are set up so it can be recorded at the EOC.

Recommendations:

Provide the Highway Patrol with a large, EPZ map with roads to help identify TCPs. A copy of the map used by the field team coordinator would work.

Provide more training for the Highway Patrol to increase understanding that the counties are the lead for TCPs with Patrol assistance as requested. The training should also emphasize the need for feedback to the EOC as to where TCPs were established.

Criterion 5.a.1: This criterion was adequately demonstrated in accordance with the existing plans and procedures and the negotiated extent of play agreement. No issues were identified.

The Missouri State Emergency Management Agency (SEMA) Emergency Alerting System (EAS) staff in the State Emergency Operations Center (EOC) included an EAS Supervisor, Assistant EAS Supervisor, and EAS Clerk. The EAS staff performed very effectively in ensuring that all EAS messages, including the initial EAS message, were transmitted to the EAS radio station, KTXY, in a timely manner.

The initial EAS message was prepared and transmitted in order to notify the public of a Site Area Emergency classification level at the Callaway Nuclear Power Plant. This initial alerting and notification sequence began with receipt in the State EOC, at 0838, of the notification that a Site Area Emergency had been declared at Callaway at 0830. Following receipt of this notification, the State EOC Operations Officer conducted a conference call, beginning at 0844, with the four risk counties within the Callaway Emergency Planning Zone (EPZ). The counties concurred at 08 47 with the decision to activate the alerting and notification system. The EAS staff prepared the EAS "message stack" on their EAS system. This included the Site Area Emergency (EAS Message #2 in the State Plan) and the Rumor Control telephone number (EAS Message #4 in the State Plan). The Operations Officer approved the EAS messages at 0848. The EAS Assistant Supervisor then requested the SEMA Control Room Supervisor, at 0850, to contact Callaway County to request activation of the sirens within the EPZ to occur at 0853. Meanwhile, the EAS Supervisor was on the telephone with KTXY radio station to coordinate release of the EAS message. The EAS message was transmitted by the State EOC at 0851 for the radio station to record (not to transmit live). The length of this initial EAS message was 1 minute and 17 seconds. The radio station was told to standby for broadcast of the EAS message until siren activation was confirmed. The SEMA Control Room Supervisor confirmed at 0855 that the sirens were activated at 0853. The EAS Supervisor then requested KTXY to begin the EAS broadcast at 0857.

The entire process for initial alerting and notification of the public was completed in a timely (10 minutes from the decision time) and well coordinated manner.

Criterion 5.b.1: This criterion was adequately demonstrated in accordance with the existing plans and procedures and the negotiated extent of play agreement for this exercise. No issues were identified.

The Missouri State Emergency Management Agency (SEMA) Emergency Alerting System (EAS) staff in the State Emergency Operations Center (EOC) included an EAS Supervisor, Assistant EAS Supervisor, and EAS Clerk. The EAS staff performed very effectively in ensuring that all EAS messages were transmitted to the EAS radio station, KTXY, in a timely manner.

Following the initial Site Area Emergency EAS message, two other EAS messages were prepared by the EAS staff and transmitted to KTXY for broadcast to the public. The first of these was an EAS message to notify the public of a General Emergency classification level, a protective action decision to evacuate subareas C1, C3, C4, C11 (in Callaway County), and G1 (Gasconade County), and the evacuation of students from the Chamois School in Osage County. Subarea G1 was evacuated due to a separate railroad hazmat event and not the Callaway incident. This EAS message was coordinated, by the SEMA Operations Officer, with the four risk counties and the EOF on a conference call at 1015. The activation of sirens was coordinated with Callaway County, by the SEMA Control Room Supervisor, at 1031. Confirmation was received in the State EOC that the sirens were activated at 1032. The EAS message was transmitted to KTXY at 1035. The station broadcast this message live (simulated) as it was transmitted to them and recorded it for rebroadcast every 15 minutes per the direction from the State EOC. The second EAS message notified the public of a protective action decision that added the additional subareas C2, C5, C6, C7 and C11 (Callaway County), M1 and M2 (Montgomery County) and O1 (Osage County) to the evacuation. This EAS message was coordinated, by the SEMA Operations Officer, with the four risk counties and the EOF on a conference call at 1240. The activation of sirens was coordinated with Callaway County by the SEMA Control Room Supervisor at 1256. Confirmation was received in the State EOC at 1259 that the sirens were activated at 1258. The transmission of the EAS message to KTXY began at 1259. Once again, the message was broadcast live (simulated) by KTXY while it was being recorded. The State EOC again instructed KTXY to repeat the message at approximately 15 minute

intervals.

Both of the EAS messages included timely, accurate, and complete instructions to the public concerning what actions to take to carry out the evacuation. The second EAS message was all-inclusive and included all of the subareas impacted by the first protective action decision as well as the new subareas. The EAS messages were consistent with the protective action decisions made by the counties. The messages also included a number to call concerning any rumors about the incident and a number to call if assistance was needed.

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

a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 3.d.1, 5.a.1, 5.b.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. NOT DEMONSTRATED: None
e. PRIOR ISSUES - RESOLVED: None
f. PRIOR ISSUES - UNRESOLVED: None

## 4.2.1.2. Missouri Dose Assessment/Field Team Coordination

Criterion 1.a.1: This criterion was adequately demonstrated pursuant to the negotiated Extent of Play and existing plans and procedures.

The capability to use effective procedures to alert, notify, and mobilize emergency personnel and activate facilities in a timely manner was demonstrated by a Forward Command Post (FCP) team from the Missouri State Emergency Management Agency (SEMA) at the Emergency Operations Facility (EOF), adjacent to the Callaway Nuclear Plant (CNP) near Jefferson City, Missouri. A Notice of Unusual Event (NOUE) was declared at the plant at 0711 and was announced over the plant's intercommunications system at 0715. At 0727, the plant upgraded the event to an Alert Emergency Classification Level (ECL) and announced that declaration at 0731. The team leader was notified by pager at 0738 of the Alert status at the plant. He notified his team members and shortly thereafter departed the State Emergency Operations Center for the EOF. The FCP team, comprised of members of SEMA and the Department of Health and Senior Services (DHSS) arrived at the EOF at 0837, after the event had been upgraded to Site Area Emergency at 0830 and announced in the EOF at 0832.

The EOF was fully staffed and operational at 0855, when the DHSS FCP team members were ready to perform dose projections and assessment. The General Emergency ECL was received at 0954.

Criterion 1.d.1: This criterion was successfully demonstrated pursuant to existing plans and procedures and in accordance with the negotiated extend-of-play agreement.

The primary means used by the State Emergency Management Agency's Forward Command Post team to communicate protective action recommendations (PARs) to State and County authorities was by fax machine. Backup communications with these agencies was by use of the Backup Radio System (BURS). The BURS was also used as backup to the Sentry Computer Program, which is the primary system used by the utility to distribute plant status and emergency classification level (ECL) information to State and County Emergency Operations Centers. The Department of Health and Senior Services dose assessment personnel used a Kenwood two-way radio system to communicate with field monitoring teams, backed up by an AT&T satellite radio/telephone system and cellular telephones. Each work station was equipped with a commercial telephone. All communications systems, both primary and backup, were demonstrated during the course of the drill. No communications equipment failures were noted.

Criterion 1.e.1: This criterion was adequately demonstrated in accordance with the existing plans and procedures and the negotiated extent of play agreement.

The State of Missouri Emergency Response Organization had sufficient equipment and supplies to support emergency operations in the Emergency Operations Facility (EOF). Personnel from the Missouri State Emergency Management Agency (SEMA) and Department of Health and Human Services (DHHS) responded to this facility.

Personnel from the SEMA had an Arrow Tech 0 - 5 R Direct Reading Dosimeter (DRD), a Landauer Luxel Optically Stimulated Dosimeter, and a packet of IOSAT potassium iodide with fourteen tablets. Leak test results for the DRDs are maintained at the SEMA headquarters. DRDs that do not pass the test are taken out of service. The Landauer Luxels had an exchange date of April 1, 2007 and are exchanged annually. The KI packets had an expiration date of August 2013.

A Canberra Mini-Radiac Personnel Radiation Monitor, worn by a person from SEMA, was also used to monitor the group exposure of State personnel in the EOF.

Personnel from DHHS had an Arrow Tech 0 - 5 R Direct Reading Dosimeter (DRD), a Landauer Luxel Optically Stimulated Dosimeter, a MGP Dosimetry electronic dosimeter model DMC 200XB, and a packet of IOSAT potassium iodide with fourteen tablets. Leak test results for the DRDs are maintained at the SEMA headquarters. DRDs that do not pass the test are taken out of service. The Landauer Luxels had an exchange date of January 1, 2007 and are exchanged annually. The MGP electronic dosimeter had a label with the next calibration due date of May 18, 2008. The KI packets had an expiration date of August 2013.

State personnel had a 1 R administrative exposure limit. Dosimetry used could easily allow the reading of the administrative limit.

SEMA personnel also had a Dell lap top computer with a HP deskjet printer. This was connected to a network and was used for log keeping and sending messages.

DHHS personnel had three Dell lap top computers with HP deskjet printers. One was used for dose projections. One was used for development of Protective Action Recommendations. One was used for log keeping of field monitoring activities.

Field monitoring activities were tracked using a map displaying the emergency planning zone and pre-selected monitoring points.

There were numerous displays and maps updated by the utility throughout the EOF for use by utility and State personnel. There were displays (projections) showing plant status, notifications to State and County, release rates and radiological data, and meteorological data. There were several maps showing both the 50 mile and 10 mile Emergency Planning Zones mounted on walls. Maps also illustrated the sub areas in all four counties.

The State had all needed equipment, supplies, forms, and procedures needed for operations in the EOF.

Criterion 2.a.1: This criterion was adequately demonstrated in accordance with the existing plans and procedures and the negotiated extent of play agreement.

The State of Missouri has an emergency worker exposure control program to keep exposure to radiation as low as reasonably achievable. The Director of the Department

of Health and Human Services (DHHS) has overall responsibility for the exposure control of emergency workers. An exposure control program is specified in plans and procedures. The State has established an administrative exposure limit of 1 R as read on a Direct Reading Dosimeter or an electronic dosimeter. This is set at 1 R to ensure the 5 REM dose limit is not exceeded. The administrative exposure limit could be adjusted as needed based upon dose projections. The State has an exposure rate turn back limit of 500 mR/hr as read with a rate meter.

There are also administrative exposure limits of 2 R for protection of property and 5 R for life saving. These would be adjusted by DHHS as needed and based upon dose projections, and the location and time of the expected activity.

The Director of DHHS was kept aware of dose projections and expected dose rates, and field monitoring exposure rate measurements during the exercise. This information was used to monitor exposure and to direct field activities. Exposure was kept as low as reasonably achievable. There was no request made during the exercise for authorization to exceed administrative exposure limits. If such a request were made it would be authorized or denied by the Director of DHHS.

Field monitoring teams were directed to cross the plume path several times during the exercise. However, to maintain exposure as low as reasonably achievable the teams were directed to locations in low background areas when counting samples and when waiting for instructions. The field team communicator reminded field teams to read and report dosimeter readings approximately every thirty minutes.

A release of radioactive materials began at 0827. The release rate continued to rise. At 1054 dose projections projected a Committed Dose Equivalent to the thyroid greater than 10 REM at one mile. Based upon this dose projection the Director of DHHS made the decision for all emergency workers in the Emergency Planning Zone to ingest potassium iodide (KI). The field teams were immediately informed of the decision so that they could ingest the KI.

Criterion 2.b.1: This criterion was adequately demonstrated in accordance with the existing plans and procedures and the negotiated extent of play agreement.

The Director of the Department of Health and Senior Services initially formulated Protective Action Recommendations (PAR) for the State of Missouri. The PARs were based upon dose projections, plant conditions, field monitoring data, release rate

information, meteorological data, and recommendations from the utility. Once formulated the PARs were presented to the Governor's Authorized Representative (GAR) from the Sate Emergency Management Agency in the Emergency Operations Facility (EOF).

Numerous dose projections were made during the exercise. The release of radioactive materials began at 0827 hours. The release rate gradually increased until approximately 1046 hours. At that time it jumped and began a rapid increase until approximately 1145 when it peaked. Then it decreased slowly and the release was stopped at approximately 1202 hours.

All dose projections were compared to utility dose projections. There were no significant differences in dose projections.

The State performed their first dose projections shortly after arriving at 0847 hours. The release rate was low and no Protective Action Guides were exceeded. As the release rate increased the Dose Assessment Coordinator performed dose projections every few minutes. An early dose projection was made to determine what the release rate would have to be in order for the PAGs to be exceeded and to change to the next Emergency Action Level. The effluent monitor had to exceed 38 mR/hr for PAGs to be exceeded.

Field Monitoring Teams began reporting elevated exposure rate readings at approximately 0920 hours. Initial dose projections were performed on field readings but no PAGs were exceeded. A utility Field Team reported a reading of 70 mr/hour at 1.6 miles downwind from the plant shortly after 0920 hours. (Note: This was an error by the controller. It was too early for that high of an exposure rate) Dose projections on this reading indicated a dose of 1.3 REM Total Effective Dose Equivalent at the Exclusion Area Boundary (EAB). Based upon this reading a General Emergency was declared.

The utility declared the General Emergency at 0952 and made a recommendation for the evacuation of the two mile radius and five miles in the downwind sectors C, D, E, and F. The Director of DHHS, based upon dose projections, the release rate, field measurements and the utility recommendation, concurred with the recommendation and presented it to the GAR for making a recommendation for the State of Missouri.

At 1054 hours, dose projections based upon the effluent monitor projected a Committed Dose Equivalent to the thyroid greater than 10 REM at one mile. Based upon this dose projection the Director of DHHS made the decision for all emergency workers in the

Emergency Planning Zone to ingest potassium iodide (KI).

No changes in Protective Action Recommendations were warranted based upon all subsequent dose projections on effluent monitor readings.

At approximately 1210 hours a controller injected message provided a field monitor measurement of 6 R/hr at approximately one mile from the plant. There was also a wind shift concurrent with this reading. Dose projections on this measurement and based upon the wind shift required a change in the PARs. The PAGs were exceeded just beyond five miles. The Utility made a recommendation to evacuate a five mile radius and five to ten miles in downwind sectors C, D, E, F, and G. This recommendation included subareas in Callaway, Gasconade, Osage and Montgomery Counties.

The Director of DHHS concurred with the utility recommendation based upon the field measurement and wind shift.

Criterion 2.b.2: This criterion was adequately demonstrated pursuant to the negotiated Extent of Play and existing plans and procedures.

Protective action decisions (PAD) for a radiological emergency at the Callaway Nuclear Plant are made by officials at the affected County Emergency Operations Centers (EOC) based on protective action recommendations (PAR) of the utility and the Missouri Department of Health and Senior Services (DHSS) with concurrence and coordination by the Missouri State Emergency Management Agency (SEMA). Potassium iodide is not specified for the general public in Missouri. PARs, before they are transmitted to the County decision-makers, are coordinated by the Governor's Authorized Representative (GAR) with the utility and via conference telephone calls to the affected County EOCs for discussion and input.

The initial PAR was based on plant conditions and a small radioactive airborne materials release from the plant which began at 0830, which triggered the declaration of a Site (Area) Emergency. It was sent as a SENTRY message from the Emergency Operations Facility (EOF) by the utility at 08 and included the statement that the Missouri Department of Health requests placing of milk animals on stored feed and water in the entire 10 mile EPZ (Emergency Planning Zone). Upon arrival of the FCP team at 0837, members were briefed by the utility Recovery Manager, and the GAR issued a confirmatory PAR notification, which was faxed to the State EOC and counties

at 0906. Recommended protective actions included sheltering (remaining indoors and monitoring Emergency Alert System messages), in addition to placing milk animals on stored feed and water, within a 10-mile radius around the plant. It also recommended access control to two miles in all directions around the plant. The PAR also included a recommendation to advise Federal agencies of the potential for a request for assistance. County Emergency Management Directors were advised to review the locations of special populations out to 10 miles, and access restrictions of the air and river traffic were recommended.

The second PAR, issued by the FCP was based on field monitoring team data from which a dose of 1.32 rem TEDE (total effective dose equivalent) was projected at or near the exclusion area boundary (EAB). The PAR was issued at 0955 and recommended evacuation of the population within two miles in all directions from the plant and five miles downwind in Sectors C, D, E, and F; sheltering to 10 miles in all directions; controlling access within a radius of five miles; a temporary embargo on agricultural products and activities within a 10-mile radius; as well as continuance of the earlier restriction on animal feed and water. Additionally, it was recommended that County Emergency Management Directors consider evacuation of special populations out to 10 miles.

The third PAR, issued at 1055, extended the embargo on agricultural products and activities out to 50 miles in sectors C, D, E, and F; recommended placing milk animals on stored feed and water out to 50 miles in those sectors; and included the recommendation for emergency workers to ingest potassium iodide (KI). A conference call, initiated by the Governor's Authorized Representative, involving officials of the counties and the State Emergency Operations Center, was held at 1102 to discuss the recommendation to ingest KI, to suggest that any emergency worker refusing to take KI should be replaced for the duration of the emergency, and to stress documenting that the KI recommendation was made.

The fourth and final PAR, issued at 1219, was based on a significant increase (controller inject) in the projected radioactive release resulting in doses exceeding the protective action guides (PAG) as far as five miles away from the plant, together with a shift in wind direction. The PAR included extending the evacuated area to five miles in all directions from the plant and 10 miles downwind, involving Sectors C, D, E, F, and G; and extending access control to 10 miles in all directions from the plant.

Criterion 3.a.1: This criterion was adequately demonstrated in accordance with the

existing plans and procedures and the negotiated extent of play agreement.

The Director of the Department of Health and Senior Services (DHSS) is responsible for exposure control for State emergency workers. The DHSS Staff and the State Emergency Management Agency Staff in the EOF all arrived with Landauer Optically Stimulated Dosimeters that served as their permanent dosimeter record, and an Arrow Tech 0 – 5 R Direct Reading Dosimeter (DRD). The DHSS Staff also had MGP Dosimetry electronic alarming dosimeters to monitor exposure.

A Dosimetry Corporation Model 909 dosimeter charger was available to zero DRD's if needed.

Dosimetry was checked at approximately thirty minute intervals. The Field Team Communicator used a timer as a reminder. The Field Team Communicator also requested field teams to read and record their exposures at approximately thirty minute intervals. All exposures were monitored by the Director of DHHS to ensure no one would exceed their administrative limits.

The administrative exposure limit as read on a DRD or on the electronic dosimeter is 1 R. There is also administrative exposure limits up to 2 R for protecting valuable property, up to 5 R for life saving or protection of large populations, and greater than 5 R for life saving or protection of large populations on a voluntary basis. No emergency worker reached any administrative limit during the exercise.

The administrative exposure limit is set low at 1 R to ensure that the 5 REM dose limit is not exceeded.

The EOF is located within the Emergency Planning Zone (EPZ). The habitability of the facility is constantly monitored with an Eberline Continuous Air Monitor in addition to personal dosimetry. If an exposure rate of 600mR/hr is reached the facility is evacuated and relocated to the alternative EOF located at the State EOC. The wind direction was away from the EOF during this exercise and there was no elevated exposure rate readings measured or noted during the exercise.

Criterion 3.b.1: This criterion was adequately demonstrated in accordance with the existing plans and procedures and the negotiated extent of play agreement.

The implementation of the potassium iodide decision (KI) was demonstrated by the

Director of Health and Human Services. Personnel from the SEMA and DHHS each had a packet of IOSAT potassium iodide with fourteen tablets. The KI packets had an expiration date of August 2013.

At 1054 hours, dose projections based upon the effluent monitor projected a Committed Dose Equivalent to the thyroid greater than 10 REM at one mile. Based upon this dose projection, the Director of DHHS made the decision for all emergency workers in the Emergency Planning Zone to ingest potassium iodide (KI). The Field Team Communicator immediately radioed the Field Monitoring Teams and informed them of the decision. A Notification Form was also prepared by SEMA with the decision. This was faxed to the counties at approximately 1100 hours.

The habitability of the Emergency Operations Facility was being constantly monitored. There were no increased exposure rate readings during the exercise. The wind direction was away from the EOF. The decision was made for emergency workers in the EOF not to ingest the KI unless the wind shifted in that direction.

Criterion 4.a.2: This criterion was adequately demonstrated in accordance with the existing plans and procedures and the negotiated extent of play agreement.

Field Monitoring Teams (FMT) were managed sufficiently to obtain information to characterize the plume and to control radiation exposure. Two State FMTs were dispatched from the Department of Health and Human Services (DHHS) office in Jefferson City. Teams were briefed by the Director of the DHHS prior to being dispatched.

A Field Team Communicator, under the direction and control of the Director of DHHS in the Emergency Operations Facility, provided instructions to the field teams and recorded information provided by the field teams. Based upon the wind direction and stability class, one field monitoring team was directed to a pre-selected monitoring point south of the suspected plume path at approximately 4 miles out. This team was instructed to traverse the plume several times during the exercise to locate the plume edges and centerline.

The second team was instructed to proceed to a pre-selected monitoring point north of the suspected plume path approximately seven miles out. This team was also instructed to traverse the plume path several times during the exercise.

The utility field teams and the State field teams were both directed from the EOF. This enabled coordination of field activities and data was shared as it was received. Data from both were used interchangeably by both the utility and State. The utility teams were generally closer in and the state teams were further out.

As exposure rate measurements were received by the Field Team Communicator the edges and centerline of the plume were plotted on a map.

Both of the field teams were instructed to obtain air samples along the centerline to determine concentrations of radioiodine and particulates in the plume. After the air samples were collected, the teams were instructed to proceed to a low background area to count the samples. Sample results were obtained from both. Concentrations of radioiodine and particulates were calculated and dose projections were performed.

Exposure rate measurements and air sample information allowed the plume to be plotted and characterized. Field teams were directed to proceed to low background areas to await further instructions several times during the exercise to maintain exposure as low as reasonably achievable.

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

a. MET: 1.a.1, 1.d.1, 1.e.1, 2.a.1, 2.b.1, 2.b.2, 3.a.1, 3.b.1, 4.a.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. NOT DEMONSTRATED: None
e. PRIOR ISSUES - RESOLVED: None
f. PRIOR ISSUES - UNRESOLVED: None

## 4.2.1.3. Missouri Radiological Field Monitoring Team A

Criterion 1.a.1: The Missouri Department of Health and Senior Services (DH&SS) demonstrated the ability to mobilize the Missouri Radiological Field Monitoring Teams. Team personnel were pre-positioned at the Missouri DH&SS facility in accordance with the Extent of Play agreement.

At 0715 DH&SS staff received notification of an unusual event at the Callaway Nuclear Power Plant. At 0733 the field teams were briefed by DH&SS staff on plant conditions,

current emergency classification levels (ECL), potentially effected sectors, exposure limits, turn-back limits, potassium iodide (KI) procedures, and team assignments. At 0752 DH&SS received notification that an Alert had been declared. The teams were assigned stand-by locations, and were promptly deployed to those locations. At 0832 the teams were dispatched and in route to their assigned locations after performing inventories and instrument operability checks. Subsequent updates to ECLs and directions to the team were made via the radio by the field team coordinator. At 0851 the team was notified of a Site Area Emergency. At 1001 the team was notified of a General Emergency and correlating protection action recommendations.

All activities were successfully demonstrated according to the appropriate plans, procedures, and Extent of Play agreements.

Criterion 1.d.1: The Missouri Radiological Field Monitoring Team 1 was equipped with a radio (primary), a satellite phone (backup), and a cellular phone (backup) as communication systems. Communication checks on all three systems were performed with the Missouri Department of Health and Senior Services staff in the Emergency Operations Facility and with Missouri Radiological Field Monitoring Team 2. Communication were established and maintained throughout the exercise. All communications occurred without delay.

All activities were performed according to the established plans, procedures and Extent of Play agreements

Criterion 1.e.1: The Missouri Radiological Field Monitoring Team 1 has all of the equipment necessary to support their assigned emergency response functions. All duffle bags, and supply drawers were inventoried by checklist prior to deploying to their assigned stand-by locations.

The team had two Ludlum 2241-3 survey instruments each equipped with a Model 44-38 probe and with a Model 44-9 pancake probe. Each survey instrument was labeled with the calibration date and operational range stickers. All calibration dates were current (December 2007). Each probe was uniquely assigned to a survey instrument and was clearly identified with that instrument by colored label. The team had two RADECO Model H810-DC air samplers equipped with the appropriate radioiodine silver zeolite cartridge and particulate filters. All air sampler calibration dates were current (July 2008). The air sampling volume was pre-set to collect a 10 cubic foot sample.

The team also used a Canberra MRAD 113 survey monitor. The Canberra survey monitor calibration date was current (July 2008). Operational checks were performed on all instruments prior to deployment.

The teams were also supplied with a handheld Garmin Global Positioning System (GPS) Model 12XL unit and a Garmin GPS StreetPilot Model 2620 unit. Response checks on the GPS units were successfully performed prior to deployment.

The team had high band portable radios, satellite phones, and cellular phones for communication system. The team performed successful communication checks prior to deployment.

The team had sufficient supplies of personal protective equipment including Tyvek, booties, boots, sleeves, gloves, and duct tape. They had environmental sampling and contamination control supplies, trash bags, tape, Ziploc bags, cubitainers, rakes, shovel, decon water, clippers and shears, drill and drill bits, 2 Geopumps, large and small tubing, and alcohol swabs. The team vehicle was equipped with road maps, Emergency Planning Zone maps with sampling locations, and procedure manuals.

Field team members were assigned Electronic Personal Dosimeters (DMC 2000XB, calibration due 5/2008), permanent record dosimeters (Landauer, LUXEL OSLs) and Potassium Iodide (KI) prior to being deployed to their assigned stand-by locations. The Electronic Dosimeter could easily read and measure the administrative exposure limit of 1 R. The KI expiration dates were current (August 2013). Instructions of the use of KI and side effects, records indicating when KI was ingested or refused, and forms to record dosimeter readings were issued in the dosimetry kits.

All equipment and supplies were available according to the appropriate plans, procedures, and extent of play agreements.

Criterion 3.a.1: The Missouri Radiological Field Monitoring Team 1 successfully demonstrated the ability to control emergency worker exposure to radioactive materials. Field team members were assigned Electronic Personal Dosimeters (DMC 2000XB, calibration due 5/2008), permanent record dosimeters (Landauer, LUXEL OSLs) and Potassium Iodide (KI) prior to being deployed to their assigned stand-by locations. The KI expiration dates were current (August 2013). Instructions of the use of KI and side effects, records indicating when KI was ingested or refused, and forms to record

dosimeter readings were issued in the dosimetry kits.

The field team members were briefed on the administrative exposure limit of 1 R as read on their Electronic Personal Dosimeter; the turn-back limit of 500 mR/hr as read on their survey instruments; instructions on wearing, reading, and recording dosimetry information; and potential decontamination station locations.

Field team members knew and understood their exposure limits and turn-back values. The team assigned one member to record dosimetry readings every 30 minutes. The field team coordinator also reminded the team to read, record and report their dosimetry every 30 minutes.

As the team was traversing the plume, instrument readings exceeded their turn-back value and the team immediately notified the field team coordinator that they had exceeded the turn-back value and exited the plume to their stand-by location. While at their stand-by location their instrument indicated an increase in ambient radiation levels. The team immediately abandoned their stand-by location, notified the field team coordinator of the increase in radiation levels, and proceeded to an alternate location.

All activities were demonstrated according to the appropriate plans, procedure, and Extent of Play agreements.

Criterion 3.b.1: The Missouri Radiological Field Monitoring Team 1 successfully demonstrated the ability to distribute and administer Potassium Iodide (KI). Prior to deployment the field team members were given a dosimetry kit that included a 14-day supply of KI (130mg tablets), the instruction for ingesting KI, its possible side effects, and a KI Ingestion Record. Field team members were also briefed on KI during the team briefing. At 0851 the field team received notification that a Site Area Emergency had been declared with a release in progress. At 0854 all field team members voluntarily ingested KI. Each member completed the KI Ingestion Record and notified the field team coordinator that all members had ingested their first dose of KI.

At 1057 hours, the DHSS Team Leader issued a recommendation for each team member to voluntarily ingest one KI tablet. Team members had already ingested thier KI before recieving this recommendation.

All activities were accomplished according to the appropriate plans, procedures, and Extent of Play agreements

Criterion 4.a.1: The Missouri Radiological Field Monitoring Team 1 was adequately equipped with the equipment necessary to successfully perform field measurements of direct radiation exposure and to collect air samples. The team had two Ludlum 2241-3 survey instruments each equipped with a Model 44-38 probe and with a Model 44-9 pancake probe. Each survey instrument was labeled with the calibration date and operational range stickers. All calibration dates were current (December 2007). Each probe was uniquely assigned to a survey instrument and was clearly identified with that instrument by colored label.

The team had two RADECO Model H810-DC air samplers equipped with the appropriate radioiodine silver zeolite cartridge and particulate filters. All air sampler calibration dates were current (July 2008). The air sampling volume was pre-set to collect a 10 cubic foot sample. The team also used a Canberra MRAD 113 survey monitor. The Canberra survey monitor calibration date was current (July 2008).

Operation checks were performed on all instruments prior to deployment.

The team had a sufficient supply of personal protective equipment (PPE) including Tyvek coveralls, booties, boots, and gloves. The team successfully demonstrated the donning and doffing of PPE prior to deployment. Extremely hot weather conditions prohibited team members from remaining dressed out for the duration of the exercise.

All activities were accomplished according to the appropriate plans, procedures, and Extent of Play agreements

Criterion 4.a.3: The Missouri Radiological Field Monitoring Team 1 successfully demonstrated the ability to perform ambient radiation measurement and to collect radioiodine and air particulate samples. At 0911 the team arrived at their assigned stand-by location. At 0917 the team was directed to traverse the plume in order to determine the southern edge, the center line and the northern edge of the plume. At 0927 the team received indication of a southern boundary of 3 mR/hr, and centerline of 27 mR/hr and a northern boundary of 3 mR/hr. All instrument readings were communicated to the field team coordinator in a timely manner.

At 0950 the team was directed to enter the plume and collect an air sample at the point where radiation levels were highest. The team made open and closed window direct radiation measurements at waist level and ground level before and after the air sample

was collected in order to ensure that they remained in the plume while the air sample was being collected. Because the waist level measurements were higher than the ground level measurement, the team determined that they were actually in the plume and not reading elevated levels from ground shine.

The team proceeded to a background location to process the samples and prepare their instruments for additional sampling events. The air particulate sample was prepared for transfer to a location for analysis. A chain of custody form was prepared and the sample was labeled with the sample number. The team in actuallity would be instructed to proceed to a location to meet either a Highway Patrol officer or National Guard member to transport the sample to the University of Missouri-Columbia laboratory for analysis.

A background count was taken and a one-minute count of the silver zeolite cartridge was completed using the Ludlum 2241-3 with a pancake probe. Gross counts, background counts, and net counts were recorded on the Field Team Date Form and were communicated to the field team coordinator in a timely fashion.

All equipment and samples were surveyed for surface contamination prior to release or reuse.

All activities were performed according to the appropriate plans, procedures, and Extent of Play agreements.

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

a. MET: 1.a.1, 1.d.1, 1.e.1, 3.a.1, 3.b.1, 4.a.1, 4.a.3.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. NOT DEMONSTRATED: None
e. PRIOR ISSUES - RESOLVED: None
f. PRIOR ISSUES - UNRESOLVED: None

## 4.2.1.4. Missouri Radiological Field Monitoring Team B

Criterion 1.a.1: This criterion was adequately demonstrated pursuant to the negotiated Extent of Play and existing plans and procedures. No new issues were identified.

The Department of Health and Senior Services (DHSS) Field Monitoring Team #2 was pre-positioned at the DHSS building at 930 Wildwood, Jefferson City, MO according to the extent of play agreement. By interview, it was determined that the DHSS Team Leader would begin activation of personnel based on a notification from the State Emergency Management Agency (SEMA) that an Alert Emergency Classification Level at the Callaway Nuclear Power Plant was declared. Notification of personnel would be accomplished using a predetermined Call Down List which identifies emergency response personnel, as well as their home and cell phone numbers. Any changes in the Emergency Classification Level would be communicated to the Field Team via the Kenwood mobile radio located in the Field Team vehicle. The Field Team was assembled in the briefing room at 0710 hours. The DHSS Team Leader declared the facility operational at 0732 hours and a briefing was initiated. A 24 hour Roster was available that demonstrated the ability to staff the Team for 24 hours.

Criterion 1.d.1: This criterion was adequately demonstrated pursuant to the negotiated Extent of Play and existing plans and procedures. No new issues were identified.

The Department of Health and Senior Services (DHSS) Field Monitoring Team #2 demonstrated two communication systems to support emergency operations. The primary means of communications with the Field Team Coordinator, located at the Emergency Operations Facility, was a Kenwood brand mobile radio. This is permanently installed in the Field Monitoring vehicle. The alternative communication system is a GMPCS brand satellite telephone.

The Team also had available cellular telephones, if needed.

The communication systems were fully operational without any problems noted and communication checks with the Field Team Coordinator and DHSS Field Monitoring Team #1 were demonstrated.

Criterion 1.e.1: This criterion was adequately demonstrated pursuant to the negotiated Extent of Play and existing plans and procedures. No new issues were identified.

The Department of Health and Senior Services (DHSS) Field Monitoring Team #2 (FMT-2) utilized a Field Monitoring Sample Location Map to identify sample locations. This map included pre-determined sample locations within the Callaway Nuclear Plant ten mile Emergency Planning Zone (EPZ). Sample locations were identified both by

GPS location and a letter/number designation (e.g. B-70). In addition to the Field Monitoring Sample Location Map, the team also had two global positioning satellite (GPS) units capable of displaying county roads and highways.

The radiation monitoring equipment included two Ludlum Model 2241-3 survey meters. Each meter was equipped with a Ludlum Model 44-38 side window Geiger-Mueller (GM) detector (used to measure ambient gamma radiation levels and detect the presence of beta radiation levels) and a Ludlum Model 44-7 pancake GM detector (used to count silver zeolite cartridges). Both instruments were calibrated within one year (04/11/2007 and 12/07/2006) according to the manufacturer's recommendation. A Canberra Model MRAD 113 GM survey meter was also available. This was calibrated within one year (07/25/2007) according to the manufacturer's recommendation.

Air sampling equipment included two RADECO Model H810-DC air samplers and associated particulate pre-filters and silver zeolite cartridges. The air samplers were calibrated within one year (05/25/2007 and 06/02/2007) according to the manufacturer's recommendation.

Dosimetry and potassium iodide (KI) packets were issued to personnel when they assembled at the DHSS building at 930 Wildwood, Jefferson City, MO. This began at 0710 hours. The FMT-2 consisted of three individuals who are employees of the DHSS. Each Field Team member was issued dosimetry which included a Landauer optically stimulated luminescent (OSL) permanent record dosimeter and a MGP Dosimetry Model DMC 2000 XB electronic direct reading dosimeter (EDRD). The EDRD's were calibrated within one year (05/2007) according to the manufacturer's recommendation. They are capable of reading the DHSS exposure limits and are set to an exposure alarm threshold of 100 milliRoentgen (mR) and an exposure rate alarm threshold of 10 mR/hour.

The administrative exposure limits are specified in the DHSS Team Air Sampling Procedure 1.5, dated July 2007. These are 1 R for all activities, 2 R for protecting valuable property, 5 R for life saving or protection of large populations, greater than 5 R for life saving or protection of large population on a voluntary basis, and a turn-back exposure rate limit of 500 mR/hour. Each memeber of FMT-2 knew these limits.

Each Field Team member was also issued a KI packet containing fourteen IOSAT tablets (one hundred thirty milligrams each). The KI is within the expiration date of 08/2013.

The dosimetry was returned to the DHSS building upon conclusion of the exercise.

Criterion 3.a.1: This criterion was adequately demonstrated pursuant to the negotiated Extent of Play and existing plans and procedures. No new issues were identified.

The decision to dispatch the Department of Health and Senior Services (DHSS) Field Monitoring Team #2 (FMT-2) would be made by the DHSS Team Leader at the Alert Emergency Classification Level. According to the extent of play agreement, the FMT-2 was pre-positioned at the DHSS building at 930 Wildwood, Jefferson City, MO. The FMT-2 was briefed by the Team Leader at 0732 hours that an Alert Emergency Classification Level at the Callaway Nuclear Power Plant was declared at 0727 hours. Also at this briefing the team was instructed on the need to check electronic dosimeters at least every thirty minutes and record their readings on the Exposure Record Form. They were also reminded to adhere to the administrative limits and turn-back values and to return dosimetry to the DHSS building at the conclusion of the mission.

The FMT-2 was directed to deploy to a stand-by sample location after the briefing and after all pre-operational inventories and function checks were completed. They were to await further instructions.

Each member correctly stated the established exposure limits. These are 1 R for all activities, 2 R for protecting valuable property, 5 R for life saving or protection of large populations, greater than 5 R for life saving or protection of large population on a voluntary basis, and a turn-back exposur rate limit of 500 mR/hour. Based on plant specific release parameters (e.g. excessive iodine concentrations from a fire to iodine filters), the DHSS Team Leader will evaluate the need to change the administrative exposure limits by reviewing the Total Effective Dose Equivalent (TEDE) to electronic direct reading dosimeter (EDRD) Correction Factor. Any change is communicated to the Field Team.

Each member of the team received their own dosimetry and during the exercise each member read their dosimetry at least every thirty minutes and recorded the readings on the Exposure Record Form. The DHSS Team Leader is responsible to determine whether a team member must be replaced based on exposure readings.

Criterion 3.b.1: This criterion was adequately demonstrated pursuant to the negotiated

Extent of Play and existing plans and procedures. No new issues were identified.

Each Department of Health and Senior Services (DHSS) Field Monitoring Team #2 (FMT-2) member was issued a potassium iodide (KI) packet containing fourteen IOSAT tablets (one hundred thirty milligrams each). These packets were issued at the DHSS building at 930 Wildwood, Jefferson City, MO prior to deployment to the field. This occurred at 0736 hours. Included in the packet were instructions for the need to take KI, the dosage and time period which KI should be taken, the possible side effects, and a form for recording KI ingestion. It was stated at the 0732 hour briefing, that the DHSS Team Leader would issue a Protective Action Recommendation (PAR) for ingesting KI if dose projections exceeded a ten rem thyroid dose at one mile from the Callaway Nuclear Plant.

At 0854 hourw, while in route to the first monitoring location, each team member simulated voluntarily ingesting of one KI tablet after they were informed that a simulated release of radioactive materials above technical specifications had occurred at 0830 hours. The ingestion was recorded on the KI Ingestion Form. At 1057 hours, the DHSS Team Leader issued a recommendation for each team member to voluntarily ingest one KI tablet. This was communicated over the Kenwood mobile radio and was based on calculated dose projections. Each member of FMT-2 had already simulated ingesting one tablet by this time.

Criterion 4.a.1: This criterion was adequately demonstrated pursuant to the negotiated Extent of Play and existing plans and procedures. No new issues were identified.

The Department of Health and Senior Services (DHSS) Field Monitoring Team #2 was dispatched from the DHSS building at 930 Wildwood, Jefferson City, MO. The vehicle used to transport the team to designated sample locations contained a well stocked inventory of equipment and supplies to support emergency operations. The team utilized a three page inventory checklist to ensure all required supplies (e.g. gloves, sample collection bags, protective clothing) were available in the vehicle prior to departure into the field.

Field radiation monitoring equipment was inventoried utilizing a Field Team Checklist prior to deployment. The radiation monitoring equipment included two Ludlum Model 2241-3 survey meters. Each meter was equipped with a Ludlum Model 44-38 side window Geiger-Mueller (GM) detector (used to measure ambient gamma radiation levels and detect the presence of beta radiation levels) and a Ludlum Model 44-7

pancake GM detector (used to count silver zeolite cartridges). Both instruments were calibrated within one year (04/11/2007 and 12/07/2006) according to the manufacturer's recommendation. Operabilty checks were performed on both meters and the four probes. This was accomplished by exposing the probes to a radioactive standard (one microCurie Cesium 137) located on the survey meter case and verifying that the readings are in the same range as those measured at the time of calibration. A Canberra Model MRAD 113 GM survey meter was also available. This was calibrated within one year (07/25/2007) according to the manufacturer's recommendation.

Air sampling equipment included two RADECO Model H810-DC air samplers and associated particulate pre-filters and silver zeolite cartridges. The air samplers were calibrated within one year (05/25/2007 and 06/02/2007) according to the manufacturer's recommendation. Operability checks were performed on the air samplers prior to deployment. The required sample volume for the air sampler is ten cubic feet.

Spare equipment and supplies are available at the DHSS building at 930 Wildwood, Jefferson City, MO if needed.

Criterion 4.a.3: This criterion was adequately demonstrated pursuant to the negotiated Extent of Play and existing plans and procedures. No new issues were identified.

The Department of Health and Senior Services (DHSS) Field Monitoring Team #2 (FMT-2) performed all required activities relating to plume phase field measurements and analysis. The team was directed to define the plume edges by transversing the plume and recording ambient radiation levels until background readings were obtained.

The team was also directed to take air samples at the plume centerline as indicated by the highest ambient radiation level. This was done utilizing the Ludlum Model 2241-3 survey meter with the Ludlum Model 44-38 side window Geiger-Mueller (GM) detector. All readings were transmitted to the DHSS Field Team Coordinator at the Callaway Nuclear Plant Emergency Operations Facility (EOF) via the Kenwood mobile radio. A total of seventeen ambient radiation levels were transmitted during the exercise.

For air sampling, the team followed the Missouri DHSS Air Sampling Procedure 1.5, dated July 2007. The method used to establish that the team was actually in the plume and not just in an elevated radiation reading due to shine was to perform a series of window open and window closed readings both at waist and ground level. The Ludlum Model 2241-3 survey meter with the Ludlum Model 44-38 side window Geiger-Mueller

(GM) detector was used to perform these measurements. If the window open reading was greater than the window closed reading at waist level, the team correctly assessed that they were in the plume. To ensure that the plume had not shifted away from the sampling location or had not changed significantly during the air sampling interval, the team preformed a series of window open and window closed readings both at waist and ground level after the completion of the air sampling interval. A total of two air samples were collected and analyzed. Both were collected at the highest ambient radiation levels indicating they were at the plume centerline. The air samples were collected at 1049 hours and 1128 hours.

The team ensured they were in a low background area while counting the air sample media by moving to an area where the plume was not directly upwind from their location. They also checked the background reading on the Ludlum Model 2241-3 survey meter with the Ludlum Model 44-7 pancake GM detector to ensure that the reading was in the typical background range of 30 to 60 counts per minute. The team counted the air sample silver zeolite cartridge in the field and recorded the results on the DHSS Field Team Data Form dated July 2007. The data included sample start time, sample number, sample flow rate, run time, sample volume, gross counts, background counts and net counts.

The particulate pre-filters were bagged for transfer to the State Lab for counting. The results of all sample analysis were transmitted to the DHSS Field Team Coordinator at the Callaway Nuclear Plant Emergency Operations Facility (EOF) via the Kenwood mobile radio.

To maintain sample integrity when transferring to the DHSS laboratory for further analysis, each sample media was separately bagged, labeled, and assigned a unique identifying number. This information was recorded on the DHSS Field Sheet and Chain-of-Custody Record dated December 2004. Additional information contained on the Chain-of-Custody Record included the sample location, GPS reading, date, time, sample type, physical characteristics of the sample and signatures for "relinquished by" and "received by".

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

a. MET: 1.a.1, 1.d.1, 1.e.1, 3.a.1, 3.b.1, 4.a.1, 4.a.3.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None

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

# 4.2.1.5. Missouri Joint Public Information Center

Criterion 1.a.1: This criterion was adequately demonstrated pursuant to the negotiated Extent of Play and existing plans and procedures.

The Joint Public Information Center (JPIC) is located in the Missouri State Emergency Operations Center (SEOC) at the Ike Skelton Training Site, 2302 Militia Drive, Jefferson City, Missouri. In accordance with the extent of play agreement (EOP), JPIC personnel were authorized to pre-position in their state offices.

At 0735, the SEOC Control Room was informed that the utility had declared an emergency classification level (ECL) Alert at 0727. In accordance with procedures the activation for the SEOC, which includes the JPIC, is initiated at this time. Based on the pre-positioning the Control Room made a public address announcement for all designated personnel to report to the SEOC. Additionally, the Control Room staff initiated its normal call down procedures.

Within minutes the State Emergency Management Agency (SEMA) Public Information Officer (PIO), the JPIC Manager and staff began arriving in the SEOC. JPIC storage lockers were unlocked and essential materials withdrawn and distributed; most notable were position folders which contained applicable extracts of the State plan's PIO Annex, the Utility's "2007 Emergency Planning Information Calendar for the Neighbors of Callaway Nuclear Plant", SEMA Callaway Nuclear Plant Nuclear Emergency Public Information Media Guide, telephone logs, SEOC message forms and SEOC note forms. The PIO initiated use of his procedural guideline checklist from the state nuclear plan, and in response to the Operations Officer and JPIC Manager's instructions the JPIC staff tested phone lines, reviewed procedural instructions from the state nuclear plan and supporting materials, and prepared to take actions if the situation continued to deteriorate. At 0830 the Operations Officer declared the SEOC, to include the JPIC, to be operational.

The NOUE ECL was declared at 0711 and received by the JPIC at 0719.

The Alert ECL was declared at 0727 and received by the JPIC at 0735.

The Site Area Emergency ECL was declared at 0830 and received by the JPIC at 0840.

The General Emergency ECL was declared at 0952 and received by the JPIC at 1005.

A 24-hour duty roster for JPIC staff was available for review.

Criterion 1.b.1: This area was not evaluated; the facility had been baselined previously and there have been no major modifications.

Criterion 1.d.1: Joint Public Information Center

This criterion was adequately demonstrated pursuant to the negotiated Extent of Play and existing plans and procedures.

The Missouri Adjutant General's Building, also known as the Ike Skelton Training Site at 2302 Militia Drive, Jefferson City, houses the Missouri State Emergency Operations Center (SEOC). The facility is well-laid-out and equipped to serve its intended functions for the National Guard and the Department of Public Safety's State Emergency Management Agency (SEMA). Within the dedicated SEMA day-to-day office area, the designated SEOC Joint Public Information Center (JPIC) work areas and Media Briefing Auditorium (training) area have sufficient communications capabilities for extended emergency operations.

Upon arrival at JPIC after the Emergency Classification Level of Alert (received at 0735) the JPIC Manager and State Public Information Officer (PIO) verified that their phone lines were active and created a phone roster for each position. A total of 24 (land-line) telephones were dedicated for JPIC communications (10-rumor control; 7-utility; 3-SEMA; 1-University of Missouri Radiation Safety Officer; and 3-Nuclear Regulatory Commission). A Radio in the Operations Room along with the computer internet system was both available as backup systems to ensure that they could maintain communications.

Telephone calls were placed to key emergency personnel in the SEOC, and the Risk Counties as appropriate ( Callaway, Gasconade, Montgomery and Osage counties). All communications with the AmerenUE Spokesman was verbal.

Since the State JIC work area is utilized for other day to day Operations training, the SEMA JPIC staff brought their own computers with them. Printers and copiers were already on location. Twenty (20) additional land-line telephones were stored in a lockable cabinet in the room.

During the exercise, commercial telephones provided the primary communication system. In addition, there was a dedicated fax machine and several notebook computers that were used to send and receive e-mail messages and paper communications. Both primary and backup communications were functioning and were actually demonstrated. All communication systems operated without any breakdowns or problems.

Criterion 1.e.1: This criterion was adequately demonstrated pursuant to the negotiated Extent of Play and existing plans and procedures.

The Missouri State Emergency Management Agency (SEMA) Joint Public Information Center (JPIC) is located within the operational area of the State Emergency Operations Center (SEOC) at the Ike Skelton Training Site, 2302 Militia Drive, Jefferson City, Missouri. This facility is located approximately 20 miles outside of the 10-mile Emergency Planning Zone (EPZ) of the Callaway Nuclear Plant so there is no requirement for the staff to have access to neither potassium iodide (KI) nor dosimetry. Based on its location the JPIC shares many of the support tools with the greater SEOC complex.

The area of the SEOC allotted to the JPIC was set up with 29 workstations with additional chairs and tables immediately available for expansion if necessary. The work stations were apportioned to the SEMA Public Information Officer (PIO) (6), Rumor Control (10), Ameren UE (7), and the U.S. Nuclear Regulatory Commission Liaison (6); 26 stations were supported with telephones and SEMA provided three laptop computers for the PIO and four for the NRC. Ameren UE provided its own equipment. In addition the area was supported by a facsimile machine, a high-speed copier, and a printer linked to the PIO computers.

The SEOC has the capability to project up to five items simultaneously – standard depictions from which the JPIC was able to ascertain information included a 10 and 50 mile EPZ map, the most current emergency notification form, plant status, and a download from the media briefing room. There were also several smaller wall-mounted

LCD television screens spaced throughout the SEOC, two of these were located near the JPIC and allowed visualizations of selected commercial television stations or the media briefing with audio.

The Media Briefing Room is located in the Training Site's auditorium. Ameren UE has the lead in setting up this 120 seat facility. At the entrance is a Media Information Chart that provides data on plant status, last/next briefing time, and location of latest news release. Briefers are supported with charts depicting the nuclear reactor, the nuclear cooling system, Definitions of emergency classification levels, and emergency planning zone maps.

The Media Monitoring area had four television monitors with video recorders, and a radio with recorder.

Criterion 5.b.1: This criterion was adequately demonstrated pursuant to the negotiated Extent of Play and existing plans and procedures.

The Missouri Adjutant General's Building, also known as the Ike Skelton Training Site at 2302 Militia Drive, Jefferson City, houses the Missouri State Emergency Operations Center (SEOC). The facility is well-laid-out and equipped to serve its intended functions for the National Guard and the Department of Public Safety's State Emergency Management Agency (SEMA). Within the dedicated SEMA day-to-day office area, the designated SEOC contains the Joint Public Information Center (JPIC) work areas. The Media Briefing Auditorium (training) area is spacious and could comfortably accommodate a large media presence for extended emergency operations.

Although there is not a designated media work area in or around the media briefing Auditorium area, in discussions with SEMA and AmerenUE staff it was pointed out that many media representatives would come with large self-contained vehicles and that the National Guard was prepared to assist in providing a parking area for these media vehicles and related media equipment. In the past, there had been occasions where a media work area was required for an extended period and it was established in the gymnasium adjacent to the briefing area. The National Guard is capable, upon SEMA request, to set up tables, chairs and run telephone lines and assist in placement of temporary TV cables through several doors into the briefing Auditorium and to support an ad hoc media work area.

Since this is a National Guard Facility, tight security is maintained at the entrance gate

and at the building main entrance. Access control during an emergency will be by trained National Guard Security Officers who will restrict press access to staff work areas.

Work areas are sufficiently spacious and designed to facilitate easy flow of information among the members of the JPIC Team which during this exercise was comprised of SEMA and AmerenUE staff; a University of Missouri Radiation Safety Officer; Missouri Department of Health and Senior Services; Missouri Department of Agriculture; Department of Natural Resources; the Department of Health and Senior Services; and the Nuclear Regulatory Commission. During interview, it was determined that the SEMA staff and other Missouri technical experts were very knowledgeable of their radiological plans and procedures and had received additional training during several recent exercise drills.

All staff was pre-positioned as called for in the Extent-of-Play Agreement and the facility was basically set up in advance. As a result, when a request to activate the JPIC was made after the Alert ECL at 0735, the facility was fully staffed and functioning; and declared operational at 0830.

Media kits were provided to the press containing information about the Callaway Plant: Emergency Planning Information Calendar; a CD titled: Callaway Imagery (with reproducible diagrams and photos); hard-copy reproducible diagrams and photos; Radiological Emergency Information; EPA brochure Radiation: Risks and Realities; The Nuclear Energy Institute's brochure: Guide to Nuclear Energy and emergency preparedness general information. Sufficient copies of all SEMA and AmerenUE News Releases were furnished to the media as soon as possible and also available in bins on a table (for new arrivals). Based on the population within the Callaway Emergency Planning Zone (EPZ), all news releases were transmitted in English only.

The JPIC is designated as the primary facility for the release of emergency public information during a nuclear event at the Callaway plant. It is administratively managed by SEMA with assistance from the Utility and other Missouri agencies as required. SEMA is basically responsible for the equipment, internal message distribution, assisting the press, and internal staff support. Members of the JPIC took their role of providing coordinated information seriously. Staff coordination was held prior to each press briefing (on the way to the briefing or in the EOC workroom). The SEMA representative who served as Briefing Moderator stayed in the briefing room to ensure that the media representatives were ready for the panel of briefers. At the end of each

briefing, a technical expert from the utility remained with the media as long as necessary to answer detailed questions related to plant conditions and operations. Appropriately, in response to specific questions, other technical experts (the University of Missouri Radiation Safety Officer; Missouri Department of Health and Senior Services; and the Missouri Department of Agriculture representatives) stayed at the end of the briefings to thoroughly provide accurate/detailed information.

The provision of additional training for the SEMA staff and other Missouri technical experts on their radiological plans and procedures; training during several recent exercise drills; along with the detailed Media Kits, timely News Releases and allowing the technical experts to stay at the end of the briefings thoroughly allowed time and personal attention that assured the media was provided accurate and detailed information to their satisfaction. This satisfies prior ISSUE NUMBER: 10-2005-5b1-A-03.

ISSUE NUMBER: 10-2005-5b1-A-03

Condition: Information provided in media briefings was not always accurate or complete.

Corrective Action: The provision of additional training for the SEMA staff and other Missouri technical experts on their radiological plans and procedures; training during several recent exercise drills; along with the detailed Media Kits, timely News Releases and allowing the technical experts to stay at the end of the briefings thoroughly allowed time and personal attention that assured the media was provided accurate and detailed information to their satisfaction.

During the exercise, PIOs from the Department of Natural Resources and the Department of Health and Senior Services were available at the PIO desk as augmentees to assist with media telephone inquiries. They were trained and familiar with the state plan and all Calloway Plant information. The JPIC Manager provided them a copy of the SEMA News Media Guide and AmerenUE's 2007 Emergency Planning Information Calendar for the Neighbors of Callaway Nuclear Plant as supplemental information. The JPIC Manager ensured that the augmentees were kept abreast of the evolving situation and had the most current news releases and feedback from media briefings. Although only one call was responded to, the augmentees were deemed fully capable of alleviating the aforementioned problem. This satisfies prior ISSUE NUMBER: 10-2005-5b1-A-02.

ISSUE NUMBER: 10-2005-5b1-A-02

Condition: Information provided to media telephone contacts was not adequate. The Public Information Officer (PIO) became overwhelmed and was unable to adequately respond to media inquiries received by telephone.

Corrective Action: During the exercise, PIOs from the Department of Natural Resources and the Department of Health and Senior Services were available to serve at the PIO work area as augmentees to assist with media telephone inquiries. They were trained and familiar with the state plan and all Calloway Plant information.

The Media Monitoring function was accomplished in a room adjacent to the main SEOC operations floor. The designated SEMA staff member assigned this role fully understood his responsibilities. Similar to the Rumor Control staff, he was kept abreast of the situation by periodic JPIC Manager briefings. Since there were no actual radio and television transmissions he was limited to monitoring media briefings. He used the most current news releases in accomplishing this ensuring that what the JPIC spokespersons were saying conformed to what had been released.

Three full Media briefings were provided in the Auditorium during the exercise: 0910 – briefing on plant conditions and the offsite response after the ECL of Site Area Emergency (SAE) was received (at 0840); 1047 – after the Governor's Declaration of State of Emergency Declaration (at 0915) and receipt of the increase in ECL to General Emergency (GE) at 1005 along with the Counties' protective recommendations. The final briefing was conducted at 1223 – a formal briefing on plant conditions and additional protective recommendations for the public and emergency workers. An additional briefing would have been held to discuss the additional protective recommendations for the public in SEMA's News Release Number 8, however, the exercise was terminated.

Immediately following the announcement that the plant conditions had increased to SAE, the AmerenUE and SEMA PIOs and designated spokespersons held a brief conversation and agreed to provide the media with a briefing on plant conditions and the offsite response. This briefing began at 0910 and each briefer provided accurate information regarding their technical area of expertise. Most of the presentation covered events at the plant and effects of radiation. The SEMA spokesman indicated that the State and County EOCs were all activated and standing-by, provided the public

inquiry phone number, and asked the media to inform their audiences to stay tuned to radio and TV for more information. All media questions were answered. Media representatives were also allowed to write additional questions on a 3x5 card and those questions would be addressed at the next briefing at 1020.

The next full briefing was delayed to 1047 as a result of the increase in the plant emergency situation to GE and the numerous coordination conference calls between the counties and SEMA to make the protective decisions for the public. In addition to the SEMA spokesman providing information regarding the evacuation recommendations: Callaway County subareas C-1, C-3, C-4, C-11; the City of Morrison in Gasconade County (train derailment) and 57 band camp students at Chamois High School in Osage County. He also reported on the Governor's Disaster Declaration and other offsite conditions, all intended to assure the public that State resources were on standby in the event conditions worsened and that health and safety of the public was of utmost concern.

The Utility spokesperson also had technical plant personnel stand-by at the end of the meeting to provide additional information.

During the final briefing at 1223, the Utility spokesperson again gave a brief report on the plant, indicating that emergency conditions had stabilized and that the radiation release path had just been closed. The State spokesperson then again pointed out the evacuation areas on a map showing the subareas and their respective reception and congregate care centers that had been opened. He repeated that air, rail, and water traffic in the area was restricted; and that agricultural products had been embargoed.

Again, all spokespersons handled media questions accurately and respectfully and the process was well-managed by the Moderator.

During the period the JPIC was operational, eight news releases were issued, as follows:
0800 – Alert Declared at Callaway Nuclear Plant.
0855 – Site Area Emergency Declared at Callaway Nuclear Power Plant, Citizen Information Telephone Line Activated.
0915 – Blunt Activates State Resources for Callaway Plant Response.
1030 – County Officials Order Evacuation for Callaway areas:, Gasconade areas;, Montgomery areas;, and Osage areas.
1140 – Agriculture Embargo Information.

1210 – Potassium Iodide Recommended for Emergency Workers Near Callaway Plant.
1300 – Surface Water Supply Restrictions.
1330 – Officials Order Additional Evacuations for Callaway, Gasconade, Montgomery, and Osage Counties.

The last New Release was a result of wind change and included new recommended evacuation areas: Callaway County subareas C-1, C-2, C-3, C-4, C-5, C-6, C-7, C-11; Gasconade County subarea G-1 (train derailment); Montgomery County subareas M-1, M-2 and Osage County subarea O-1.

Preparation of these news releases followed the prescribed procedure requiring coordination with the counties (as appropriate); the Governor's office; participating agencies; AmerenUE and SEMA (Operations). While this process assures information coordination, it was coordinated by the JPIC Manager so as to not cause delays in maintain timeliness of information released to the public.

Rumor Control: This function was conducted by a jointly staffed SEMA/AmerenUE team located within the main operational area of the SEOC. Immediately upon arrival the Rumor Control staff members reviewed the materials available in their position folders. This material included extracts from the state nuclear plan, the SEMA News Media Guide, the AmerenUE 2007 Emergency Information Planning Calendar for the Neighbors of the Callaway Nuclear Plant, KI Talking Points, and a one page quick reference guide.

The Rumor Control number was published in an initial news release, addressed in media briefs, and is published in the utility's calendar. Although the joint team only received 13 calls, they displayed a thorough understanding of their role, standing operational procedures, and the ability to take prudent independent action. No specific rumors or trends were identified but the team was astute enough to identify abnormal situations described by callers that required action by other parties. In one instance a woman called regarding her husband, a plant employee who was not at the plant's designated assembly point. This information was quickly shared with AmerenUE UE JPIC staff members who followed up with the plant and were able to contact the wife with the details of her husband's whereabouts. In another instance a county school board member was unable to reach his county EOC and wanted to pass on information about an accident that might adversely affect evacuation routes. This information was passed through the JPIC Manager to the respective county and SEOC law enforcement personnel for follow-up.

The Rumor Control staff was kept current through update briefings provided by the JPIC Manager as the situation changed and news releases were prepared. The group studied each news release and discussed it amongst themselves to ensure all had a common understanding. Members took turns fielding calls and shared their actions so all team members remained abreast of information being provided by their cell. The majority of the calls received dealt with caller misunderstanding of protective action measures. The Rumor Control staff used the news releases and information provided in the utility calendar and SEMA's media guide to advise callers of actions to take. Located in the main operational area of the SEOC has pros and cons. Among the latter is the fact that the Rumor Control team hears SEOC update briefings. Although they were aware of actions being taken by the state and counties that could affect the public, they diligently avoided passing this information on prematurely – their mantra was "if we don't have it in a news release or as a piece of standard information (i.e., descriptions of subareas, locations of reception and congregate care centers) we don't pass it on".

The Rumor Control staff was provided referral numbers for transportation issues and understood that any calls from the media were to be referred to the State PIO number. In an earlier exercise information provided to media telephone contacts was not adequate. To alleviate this problem, SEMA coordinated for PIOs from other state agencies to assist in fielding media calls in the JPIC.

PRIOR ARCAs - RESOLVED:

Issue No.: 010-2005-5b-1-A-02

Description: Information provided to media telephone contacts was not adequate. The Public Information Officer (PIO) became overwhelmed and was unable to adequately respond to media inquiries received by telephone. The base cause was assessed to be that the State PIO was overwhelmed with work and responsibilities without any assistance in media release writing, seeking accuracy of the releases, or answering the phone. According to the PIO checklist, the state PIO is to assist the Governor's Press Secretary; however, the Governor's Press Secretary was not involved in the exercise The PIO indicated that she required additional training on the new telephone system.

Corrective Action Demonstrated: The state intent was to revise plans, procedures and staffing levels to reassign this responsibility. The recommendation was for a separate group, similar to Rumor Control, to be established as the focal point for media queries.

In reassessing the issue SEMA decided to implement staffing actions that would maintain media contact with Public Information Officers. The first step is that a SEMA Pubic Information Officer is available in the media briefing area to field and/or direct face-to-face media queries. To alleviate disruptions to the State Emergency Management Agency's (SEMA) PIO broad role within the Joint Public Information Center, SEMA has coordinated with other state agencies to supplement the PIO capability. The plan is to augment the SEMA PIO with PIO's from other agencies who, during SEOC activations, will assist in responding to telephonic media queries. The thought behind this is that the augmentees will be trained and experienced individuals who routinely perform this function for their own agency and will need minimal guidance in fulfilling the role.

During the exercise PIOs from the Department of Natural Resources and the Department of Health and Senior Services were available as augmentees. They were familiar with the state plan, and the JPIC Manager provided them a copy of the SEMA News Media Guide and AmerenUE's 2007 Emergency Planning Information Calendar for the Neighbors of Callaway Nuclear Plant as supplemental information. The JPIC Manager ensured that the augmentees were kept abreast of the evolving situation and had the most current news releases and feedback from media briefings. Although only one call was responded to, the augmentees were deemed fully capable of alleviating the aforementioned problem.

PRIOR ARCAs - RESOLVED:

Issue No.: 010-2005-5b-1-A-03

Description: Information provided in media briefings was not always accurate or complete.

Corrective Action Demonstrated: The State PIO ensured that additional training was provided to Technical Assistance Representatives on the provision of the plan. Develop a method to assure that the State Spokesperson has been thoroughly briefed on current status of information released and has reviewed and understands all decision implemented by the response organizations.
Through additional training and practice exercises, State Emergency Management Agency ensured that all personnel assigned to the Joint Public Information Center were aware of their plans and procedures.

During the exercise, The provision of additional training for the SEMA staff and other Missouri technical experts on their radiological plans and procedures; training during several recent exercise drills; along with the detailed Media Kits, timely News Releases and allowing the technical experts to stay at the end of the briefings thoroughly allowed time and personal attention that assured the media was provided accurate and detailed information to their satisfaction.

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

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

ISSUE NO.: 010-05-5b1A-2

ISSUE: CONDITION: Information provided to media telephone contacts was not adequate. The Public Information Officer became overwhelmed and was unable to adequately respond to media inquiries received by telephone.

CORRECTIVE ACTION DEMONSTRATED: This issue was demonstrated successfully and is closed.

ISSUE NO.: 010-05-5b1A-03

ISSUE: CONDITION: Information provided in media briefings was not always accurate or complete. In the first news briefing, the University of Missouri Technical Assistance Representative, when responding to a media question concerning when the evacuated public could return to their homes, stated that they could return when the radiation levels were determined to be at background. Annex B of the State Plan states in a footnote to Table B-2 "Persons previously evacuated from areas outside the relocation zone defined by this PAG may return to occupy their residences. Cases involving relocation of persons at high risk from such action (e.g., patients under intensive care) should be evaluated individually" where the PAG referenced is shown as 2 rem in the first year.

In the 3rd media briefing, the State Spokesperson, responding to a media question concerning the number of citizens who had been directed to evacuate, indicated that approximately 6,000 residents had been evacuated. He explained that Callaway County had approximately 17,000 residents in the Emergency Planning Zone (EPZ) and that approximately 11,000 were residents of the City of Fulton and that Fulton was outside the 10-mile radius of the plant. In fact, the City of Fulton (Zone C-9) was directed to evacuate along with all of the other zones in Callaway County (SEMA News Release # 6)

CORRECTIVE ACTION DEMONSTRATED: This issue was demonstrated successfully and is closed.

f. PRIOR ISSUES - UNRESOLVED: None

# 4.2.1.6. Missouri Forward Command Post/EOF

Criterion 1.a.1: This criterion was adequately demonstrated pursuant to the negotiated Extent of Play and existing plans and procedures.

The capability to use effective procedures to alert, notify, and mobilize emergency personnel and activate facilities in a timely manner was demonstrated by a Forward Command Post (FCP) team from the Missouri State Emergency Management Agency (SEMA) at the Emergency Operations Facility (EOF), adjacent to the Callaway Nuclear Plant (CNP) near Jefferson City, Missouri. A Notice of Unusual Event (NOUE) was declared at the plant at 0711 and was announced over the plant's intercommunications system at 0715. At 0727, the plant upgraded the event to an Alert Emergency Classification Level (ECL) and announced that declaration at 0731. The supervisor of the FCP team, whose office is in Jefferson City, was notified by pager at 0738 of the Alert status at the plant. He notified his team members and shortly thereafter departed the State Emergency Operations Center for the EOF. The FCP team, comprised of members of SEMA and the Department of Health and Senior Services (DHSS) arrived at the EOF at 0837, after the event had been upgraded to Site Area Emergency at 0830 and announced in the EOF at 0832. The EOF was fully staffed and operational at 0855, when the DHSS FCP team members were ready to perform dose projections and

assessment. The General Emergency ECL was received at 0954.

Criterion 1.c.1: This criterion was adequately demonstrated pursuant to the negotiated Extent of Play and existing plans and procedures.

The capability to provide key personnel for effective direction and control pertinent to the response effort was demonstrated by the State Emergency Management Agency (SEMA) at the Calloway Nuclear Plant's Emergency Operations Facility (EOF). In charge of the SEMA response at the EOF was the Governor's Authorized Representative, who is a member of the Missouri SEMA. He coordinated (through conference calls with the State Emergency Operations Center Operations Chief, Public Information Office, and Callaway, Gasconade, Montgomery, and Osage County emergency officials) information pertaining to proposed protective action recommendations. He kept his staff well-informed and maintained close liaison with Department of Health and Senior Services (DHSS) members of the team concerning dose assessment, field monitoring team activities, and events which might affect field monitoring team activities. He recommended restrictions on river, air, and rail traffic and contacted federal agencies to have aerial monitoring teams stand by (and later to deploy) to aid in determining degree and extent of ground contamination from the radioactive plume. He interfaced as necessary with members of the Nuclear Regulatory Commission, who were in attendance at the EOF. A copy of the Missouri Nuclear Accident Plan was available. Messages were numbered and distributed to the staff in a timely manner. He coordinated, in a timely manner, the announcement of protective action recommendations using the specified forms.

Criterion 1.d.1: The primary means used by the State Emergency Management Agency's Forward Command Post team to communicate protective action recommendations (PARs) to State and County authorities was by fax machine. Backup communications with these agencies was by use of the Backup Radio System (BURS). The BURS was also used as backup to the Sentry Computer Program, which is the primary system used by the utility to distribute plant status and emergency classification level (ECL) information to State and County Emergency Operations Centers. The Department of Health and Senior Services dose assessment personnel used a Kenwood two-way radio system to communicate with field monitoring teams, backed up by an AT&T satellite radio/telephone system and cellular telephones. Each work station was equipped with a commercial telephone. All communications systems, both primary and backup, were demonstrated during the course of the drill. No

communications equipment failures were noted.

Criterion 2.b.2: This criterion was adequately demonstrated pursuant to the negotiated Extent of Play and existing plans and procedures.

Protective action decisions (PAD) for a radiological emergency at the Callaway Nuclear Plant are made by officials at the affected County Emergency Operations Centers (EOC) based on protective action recommendations (PAR) of the utility and the Missouri Department of Health and Senior Services (DHSS) with concurrence and coordination by the Missouri State Emergency Management Agency (SEMA). Potassium iodide is not specified for the general public in Missouri. PARs, before they are transmitted to the County decision-makers, are coordinated by the Governor's Authorized Representative (GAR) with the utility and via conference telephone calls to the affected County EOCs for discussion and input.

The initial PAR was based on plant conditions and a small radioactive airborne materials release from the plant which began at 0830, which triggered the declaration of a Site (Area) Emergency. It was sent as a SENTRY message from the Emergency Operations Facility (EOF) by the utility at 0830, prior to the arrival of the Forward Command Post (FCP) team from SEMA, and included the statement that the Missouri Department of Health requests placing of milk animals on stored feed and water in the entire 10 mile EPZ (Emergency Planning Zone). Upon arrival of the FCP team at 0837, members were briefed by the utility Recovery Manager, and the GAR issued a confirmatory PAR notification, which was faxed to the State EOC and counties at 0906. Recommended protective actions included sheltering (remaining indoors and monitoring Emergency Alert System messages), in addition to placing milk animals on stored feed and water, within a 10-mile radius around the plant. It also recommended access control to two miles in all directions around the plant. The PAR also included a recommendation to advise Federal agencies of the potential for a request for assistance. County Emergency Management Directors were advised to review the locations of special populations out to 10 miles, and access restrictions of the air and river traffic were recommended.

The second PAR, issued by the FCP was based on field monitoring team data from which a dose of 1.32 rem TEDE (total effective dose equivalent) was projected at or near the exclusion area boundary (EAB). The PAR was issued at 0955 and recommended evacuation of the population within two miles in all directions from the plant and five miles downwind in Sectors C, D, E, and F; sheltering to 10 miles in all

directions; controlling access within a radius of five miles; a temporary embargo on agricultural products and activities within a 10-mile radius; as well as continuance of the earlier restriction on animal feed and water. Additionally, it was recommended that County Emergency Management Directors consider evacuation of special populations out to 10 miles.

The third PAR, issued at 1055, extended the embargo on agricultural products and activities out to 50 miles in sectors C, D, E, and F; recommended placing milk animals on stored feed and water out to 50 miles in those sectors; and included the recommendation for emergency workers to ingest potassium iodide (KI). A conference call, initiated by the Governor's Authorized Representative, involving officials of the counties and the State Emergency Operations Center, was held at 1102 to discuss the recommendation to ingest KI, to suggest that any emergency worker refusing to take KI should be replaced for the duration of the emergency, and to stress documenting that the KI recommendation was made.

The fourth and final PAR, issued at 1219, was based on a significant increase (controller inject) in the projected radioactive release resulting in doses exceeding the protective action guides (PAG) as far as five miles away from the plant, together with a shift in wind direction. The PAR included extending the evacuated area to five miles in all directions from the plant and 10 miles downwind, involving Sectors C, D, E, F, and G; and extending access control to 10 miles in all directions from the plant.

Criterion 2.c.1: This criterion was adequately demonstrated pursuant to the negotiated Extent of Play and existing plans and procedures.

The capability to provide recommendations for protection of special population groups was demonstrated. Protective action decisions are made by officials of the affected counties. The Governor's Authorized Representative made the recommendation to County Emergency Management Directors to review the locations of special population groups out to 10 miles in the first protective action recommendation (PAR) issued, at 0837. As a part of all of the other PARs, he strengthened the recommendation to state that they should "consider the evacuation" of special populations out to 10 miles. He explained that evacuation of special populations involves a careful consideration of the risks versus benefits of moving certain special populations, such as hospitals, mental hospitals, and prison facilities.

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

a. MET: 1.a.1, 1.c.1, 1.d.1, 2.b.2, 2.c.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. NOT DEMONSTRATED: None
e. PRIOR ISSUES - RESOLVED: None
f. PRIOR ISSUES - UNRESOLVED: None

# 4.2.1.7. EAS Station - KTXY

Criterion 5.a.1: The primary Emergency Alert System (EAS) broadcast location is in the broadcast studio of KTXY radio (106.9 FM)in Columbia, Missouri. KTXY uses a pre-recorded "header" message to fulfill the two minute EAS message requirement. The "header" message precedes more detailed informational messages that are then broadcast following the activation of the EAS. The State Emergency Management Agency (SEMA) is the agency that contacts KTXY directly to authorize all EAS message broadcasts. All activities between SEMA and KTXY relating to the EAS for this exercise were conducted over a dedicated phone line. All activities associated with this criterion were demonstrated successfully after retraining and further demonstration.

At 0808, the on-air broadcaster at KTXY received a phone call from SEMA over the dedicated phone line. Contact phone numbers were verified between KTXY and SEMA and KTXY was told to stand by for activation of the EAS later in the day.

At 0852, SEMA called KTXY for EAS activation. SEMA transmitted the Site Area Emergency message over the dedicated phone line while KTXY was recording the message. As per SEMA's instructions, the on-air broadcaster then activated the EAS (simulated) for Callaway, Montgomery, Gasconade, and Osage counties, according to their procedures. At 0857 the message was broadcast (simulated) and was then repeated at 15 minute intervals per SEMA's instructions. However, the "header" message that is used to fulfill the two minute EAS requirement did not specifically mention Osage county. The evaluator brought this to the attention of the broadcaster, who directed the issue to the attention of the Chief Engineer. The corrected pre-recorded message was then used for subsequent EAS activations.

At 1037, SEMA called KTXY with the General Emergency message and instructed

KTXY to stop broadcasting the previous message. They were isntructed to transmit the message from SEMA live while recording it, with playback at 15 minute intervals until further notice. The on-air broadcaster successfully simulated transmitting the message live while recording it, however, the broadcaster did not activate the EAS prior to transmitting the message over the air. As a result, persons in the affected counties may not have been aware of new information about protective actions to take in order to protect their health and safety. After reviewing the procedures with the broadcaster, activation of the EAS was demonstrated properly prior to transmitting the next exercise message (see next paragraph).

At 1259, SEMA called KTXY with a new exercise message concerning new protective actions. The on-air broadcaster stopped transmitting the previous message as instructed. The broadcaster confirmed with SEMA that they wanted her to activate the EAS at that time. The broadcaster then proceeded to activate the EAS properly and began transmitting the new message from SEMA while recording it.

The exercise was terminated prior to SEMA finishing the new message.

Upon further review of the "header" message, it was determined that it lacked sufficient information for the public. Specifically, there was no direction given for the public to refer to REP related emergency information, such as public information brochures. Also, KTXY was using on older procedure which did not allow for "live" message broadcasts while recording. KTXY did conduct message broadcasts properly (live broadcast while recording) and in accordance with a newer procedure. KTXY provided an updated procedure on the day following the exercise and corrected the pre-recorded "header" message

Criterion 5.b.1: Emergency Alert System (EAS) messages and follow-up informational messages are broadcast by KTXY radio in Columbia, MO. KTXY uses a pre-recorded "header" message to meet the two minute requirement for EAS messages, and then follows the EAS messages with appropriate informational messages that the State Emergency Management Agency (SEMA) authorizes them to record and broadcast. This criterion was successfully demonstrated.

The first EAS activation was requested by SEMA at 0853, following the Site Area Emergency. The informational message was recorded by KTXY at the direction of SEMA. SEMA then requested that KTXY activate the EAS for Callaway, Montgomery, Gasconade, and Osage counties, using the pre-recorded "header" message followed by

the informational message. SEMA further directed KTXY to repeat the message broadcast at fifteen minute intervals until instruicted otherwise. The first broadcast began at 0857, following activation of the EAS and broadcast of the "header" message.

The second EAS avtivation was requested by SEMA at 1035, following the General Emergency. This time SEMA requested that KTXY cease broadcasting the previous message and broadcast a new message "live" (simulated) while recording it for playback. The on-air broadcaster proceeded to broadcast the message live at 1037, however, the broadcaster failed to activate the EAS. This issue is addressed under sub-element 5.a, criterion 5.a.1. The message was repeated at fifteen minute intervals as directed by SEMA.

The third EAS activation was requested by SEMA at 1257. SEMA again directed KTXY to cease broadcasting the previous message and to prepare to broadcast a new message "live" while recording it for playback. The on-air broadcaster activated the EAS and message broadcast began at 1259.
The exercise was terminated at approximately 1304, prior to the completion of the message.

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

a. MET: 5.a.1, 5.b.1.
b. AREAS REQUIRING CORRECTIVE ACTION: 5.a.1, 5.a.1, 5.a.1.

ISSUE NO.: 010-07-5a1-A-01

ISSUE: Activities associated with primary alerting and notification of the public are completed in a timely manner following the initial decision by authorized offsite officials to notify the public of an emergency situation. (10 CFR Part 50, Appendix E & NUREG-0654, E.1.,4.,5.,6.,7.)

CONDITION: The on air broadcaster failed to activate the EAS prior to transmitting the General Emergency message at 1037.

POSSIBLE CAUSE: The on-air broadcaster may not have been thoroughly familiar with the procedures for activating the EAS and transmitting EAS messages.

REFERENCE: (10 CFR Part 50, Appendix E & NUREG-0654, E.1.,4.,5.,6.,7.)

EFFECT: Persons in Callaway, Montgomery, Gasconade, and Osage counties may not have been alerted to new information that was being broadcast about the Callaway Nuclear Power Plant incident. As a result, some persons might not have been aware of the protective actions they were being instructed to take in order to protect their health and safety.

CORRECTIVE ACTION DEMONSTRATED: The evaluator reviewed the procedures with the on-air broadcaster. The on-air broadcaster then properly demonstrated the activation of the EAS system prior to transmitting the next exercise message, concerning a wind shift with new protective actions, at 1259. This issue is closed.

ISSUE NO.: 010-07-5a1-A-02

ISSUE: Activities associated with primary alerting and notification of the public are completed in a timely manner following the initial decision by authorized offsite officials to notify the public of an emergency situation. (10 CFR Part 50, Appendix E & NUREG-0654, E.1.,4.,5.,6.,7.)

CONDITION: The "header message" for the first EAS activation directed residents of Callaway, Montgomery, and Gasconade counties to stay tuned to KTXY for further information. However, Osage county was omitted from this pre-recorded message.

POSSIBLE CAUSE: Oversight on the part of the EAS station when recording the "header message".

REFERENCE: (10 CFR Part 50, Appendix E & NUREG-0654, E.1.,4.,5.,6.,7.)

EFFECT: Persons in Osage county may not have been aware that they needed to listen for further information about the Callaway incident.

CORRECTIVE ACTION DEMONSTRATED: The evaluator pointed out the omission to the on-air broadcaster immediately. The on-air broadcaster had

the chief engineer record the "header message" again, this time including Osage county. This corrected "header" was used for all subsequent EAS activations. This issue is closed.

ISSUE NO.: 010-07-5a1-A-03

ISSUE: Activities associated with primary alerting and notification of the public are completed in a timely manner following the initial decision by authorized offsite officials to notify the public of an emergency situation. (10 CFR Part 50, Appendix E & NUREG-0654, E.1.,4.,5.,6.,7.)

CONDITION: The "header message" was insufficient in its message content. There was no direction for persons in the affected areas to refer to their REP specific emergency information, such as their public information brochures.

POSSIBLE CAUSE: The EAS station was using an outdated procedure.

REFERENCE: (10 CFR Part 50, Appendix E & NUREG-0654, E.1.,4.,5.,6.,7.)

EFFECT: Persons in the affected areas would not have received direction to refer to the appropriate emergency information, which could have caused them to miss vital information important to the protection of their health and safety.

CORRECTIVE ACTION DEMONSTRATED: The EAS station provided an updated procedure on the day following the exercise and recorded a new "header message" that included the appropriate information.

c. DEFICIENCY: None
d. NOT DEMONSTRATED: None
e. PRIOR ISSUES - RESOLVED: None
f. PRIOR ISSUES - UNRESOLVED: None

## 4.2.1.8. Missouri School for the Deaf

Criterion 1.e.1: This criterion was successfully demonstrated in accordance with

established plans and procedures and the negotiated extent of play agreement.

The primary protective action undertaken by the Missouri School for the Deaf is evacuation of the staff and students. Accordingly, the amount of special equipment and supplies is minimal to support this action.

Copies of the appropriate plans and procedures are readily available to all staff. Specially-modified tone-alert radios with visual indicators are located throughout the premises. Personnel accountablity materials are available to all staff. Should dosimetry and Potassium Iodide be required, it is provided by Callaway County.

Criterion 3.c.2: This criterion was successfully demonstrated in accordance with established plans and procedures and the negotiated extent of play agreement.

Upon receipt of a Site Area Emergency advisement from the Callaway County Emergency Management Agency, Missouri School for the Deaf administrators would initiate evacuation/relocation of the facility. Responsibility for deciding to undertake this action rests, in order, with the School Superintendent, Assistant Superintendent and School Supervisors.

Copies of the plans and procedures to affect this evacuation/relocation are readily available to all staff.

Students would be relocated to the Hearnes Reception and Care Center at the University of Missouri, Columbia. There are sufficient buses to move the students; however, the School maintains contact with the Callaway County Emergency Operations Center to both request additional transportation resources and/or offer excess transportation to the county pool of units.

Parents are advised in advance of the plans and procedures. If evacuation/relocation is undertaken, public information would be provided via KTXY and other media outlets and parents would be contacted per school policies.

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

a. MET: 1.e.1, 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None

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

## 4.2.2. Risk Jurisdictions

### 4.2.2.1. Fulton Treatment Center

Criterion 1.c.1: This criterion was adequately demonstrated pursuant to existing plans and procedures and in accordance with the negotiated extent of play agreement.

At the time of this exercise, both Fulton Treatment Center and Rosa Parks Center were under joint management, and the exercise interview was conducted at Fulton Treatment Center. See the evaluation summary for Rosa Parks Center for additional details on both sites.

The center administrator or his/her designee is in charge of all activities associated with protective actions. All staff are thoroughly familiar with the plans and are trained in their responsibilities.

The preferred protective action for both facilities is evacuation/relocation to another state facility, either in Mexico, Missouri, or Columbia, Missouri. A total of 46 inmates (13 at Rosa Parks and 33 at Fulton) would be evacuated.

Criterion 1.e.1: This criterion was adequately demonstrated pursuant to existing plans and procedures and in accordance with the negotiated extent of play agreement.

At the time of this exercise, both Fulton Treatment Center and Rosa Parks Center were under joint management, and the exercise interview was conducted at Fulton Treatment Center.

Both facilities are places of incarcertation/treatment for juveniles, age 12 through 20, who have been found guilty of committing felony offenses.

A sufficient supply of plans/procedures, maps and other items required for the evacuation/relocation of the staff and inmates was demonstrated to be on-hand.

Sufficient numbers of vehicles (both mini-buses and automobiles) are available. All but one auto have radios permitting two-way comunication. Additional resources are available from Callaway County. Potassium Iodide supplies, if required as both facilities anticipate evaucation/relocation prior to release from the plant, would be supplied by the Callaway County Emergency Management Agency.

Criterion 3.a.1: This criterion was adequately demonstrated pursuant to existing plans and procedures and in accordance with the negotiated extent of play agreement.

At the time of this exercise, both Fulton Treatment Center and Rosa Parks Center were under joint management, and the exercise interview was conducted at Fulton Treatment Center.

Both facilities are places of incarcertation/treatment for juveniles, age 12 through 20, who have been found guilty of committing felony offenses.

The center administrator or his/her designee is in charge of all activities associated with protective actions. All staff are thoroughly familiar with the plans and are trained in their responsibilities.

The preferred protective action for both facilities is evacuation/relocation to another state facility, either in Mexico, Missouri, or Columbia, Missouri. A total of 46 inmates (13 at Rosa Parks and 33 at Fulton) would be evacuated.

Relocation, pursuant to plan, would begin automatically at Site Area Emergency and with the concurrence of the administrator or the next designated person. While the facility could provide interim shelter in place protection, evacuation be undertaken barring any major obstacles.

Dosimetry, both high and low-range direct-reading dosimeters and Optically Stimulated Dosimeters will be provided to the staff of both Rosa Parks and Fulton Treatment by the Callaway County Emergency Management Agency.

Criterion 3.b.1: This criterion was adequately demonstrated pursuant to existing plans and procedures and in accordance with the negotiated extent of play agreement.

At the time of this exercise, both Fulton Treatment Center and Rosa Parks Center were under joint management, and the exercise interview was conducted at Fulton Treatment

Center.

Both facilities are places of incarcertation/treatment for juveniles, age 12 through 20, who have been found guilty of committing felony offenses.

Through interview, personnel evidenced an understanding of the reasons for the administration of Potassium Iodide (KI); however, the ingestion of KI is not foreseen as the administration and staff plan on completely relocating both inmates and staff quickly at or just before a Site Area Emergency is declared.

Should unforeseen circumstances warrant a change in this plan, the Callaway County Emergency Operations Center would be contacted to provide both KI and a briefing officer.

Criterion 3.c.1: This criterion was adequately demonstrated pursuant to existing plans and procedures and in accordance with the negotiated extent of play agreement.

At the time of this exercise, both Fulton Treatment Center and Rosa Parks Center were under joint management, and the exercise interview was conducted at Fulton Treatment Center.

Both facilities are places of incarcertation/treatment for juveniles, age 12 through 20, who have been found guilty of committing felony offenses.

The center administrator or his/her designee is in charge of all activities associated with protective actions. All staff are thoroughly familiar with the plans and are trained in their responsibilities.

The preferred protective action for both facilities is evacuation/relocation to another state facility, either in Mexico, Missouri, or Columbia, Missouri. A total of 46 inmates (13 at Rosa Parks and 33 at Fulton) would be evacuated.

Relocation, pursuant to plan, would begin automatically at or before Site Area Emergency and with the concurrence of the administrator or the next designated person. While the facility could provide interim shelter in place protection, evacuation would be undertaken barring any major obstacles.

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

a. MET: 1.c.1, 1.e.1, 3.a.1, 3.b.1, 3.c.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. NOT DEMONSTRATED: None
e. PRIOR ISSUES - RESOLVED: None
f. PRIOR ISSUES - UNRESOLVED: None

## 4.2.2.2. Callaway County/Fulton Emergency Operations Center

Criterion 1.a.1: This criterion was adequately demonstrated in accordance with the plans, procedures, and extent of play agreement.

At 0718 the Callaway County/Fulton 911 Center received a Notice of Unusual Event Emergency Classification Level (ECL) notification from the Callaway Nuclear Power Plant via the Sentry (e-mail) System. At 0719 the 911 Center staff began notifications of the key staff of the Callaway County/Fulton Emergency Operations Center (EOC) beginning with the Emergency Management Director (EMD), the Public Information Officer (PIO), and the Sheriff. All notifications on the two page Unusual Event Emergency Notification call List were made in a timely manner. At 0720 the Callaway Plant called via commercial telephone to verify receipt of the ECL. At 0727 staff began arriving at the EOC. There was no pre-positioning of staff in the EOC.

At 0734 the 911 Center and the EOC received an Alert ECL notification from the Callaway Nuclear Power Plant via the Sentry System. At 0735 Osage County called the 911 Center to verify receipt of the Alert ECL notification.

At 0800 the EMD briefed the EOC that the facility was operational. All staff were present at this time according to the plan including key members from Operations, Communications, Clerical, and Facility Support. The plan calls for 24 hour staffing capability in the EOC and alternates for key staff were listed and available.

At 0838 the EOC received a Site Area Emergency (SAE) ECL notification from the Callaway Nuclear Power Plant via the Sentry System. At 1000 the EOC received a General Emergency (GE) ECL notification from the Callaway Nuclear Power Plant. All modifications to SAE and GE ECL notifications were followed with commercial telephone calls to verify receipt.

Criterion 1.b.1: This criterion was adequately demonstrated in accordance with the plans and procedures and the extent of play agreement.

The Callaway/Fulton county EOC, located in the Callaway County Law Enforcement Center, approximately 10 air miles from the Callaway Plant, is capable of supporting 24-hour-per-day extended operations, and serves as the base for the direction and control of County/City emergency operations. No new facility modifications were made and the facility was set up based upon demonstrated plans and procedures and floor plan. The facility is sufficient to support emergency response and has adequate space, lighting, furnishings, restrooms, ventilation, and a back up power generator. Replacement of one worn map was recommended and is not an issue.

Criterion 1.c.1: The capability to direct and control emergency operations was adequately demonstrated. All activities described in the demonstration criteria for this criterion were carried out in accordance with the plan and procedures and the extent of play agreement.

The Callaway County Emergency Operations Center (EOC) is located in the County Sheriff Building in Fulton, Missouri. It is under the overall direction of the Emergency Management Director (EMD) that directed actual EOC operations. Through coordination with all EOC staff and the County Commissioners, the EMD issued appropriate instructions to staff and directed operations effectively.

Upon arrival at the EOC, staff members were instructed by the EMD to review the plan and procedures for their positions. They were then instructed to review the procedures for the current Emergency Classification Level (ECL), to assess their status in relation to the plan and procedures, and to report any unmet needs to the EMD.

In anticipation of the elevation of the ECL to the next level, the EMD briefed every EOC staff member on the actions they would be taking during the next ECL. In this manner, staff members were able to understand better how their actions would impact other agencies represented in the EOC.

The EOC was declared operational at 0800 and an initial briefing to staff was done. The next briefing was conducted at 0931 and approximately every 30 minutes thereafter. Special information and briefings were intermixed during Alert Conditions and special events.

The EMD also coordinated Protective actions, EAS, and siren sounding via the Backup Emergency Radio System (BERS) and telephone conference call with the Governors' Authorized Representative (GAR), Callaway County Commissioners, other Risk Counties, Missouri State EOC, and the Callaway County 911 center.

Follow-up for missing or confusing information was quickly identified and verified with appropriate responsible organizations.

In addition, staff members were instructed to review all messages and actions and any message that could not be adequately addressed by EOC staff was coordinated with the EMD.

Criterion 1.d.1: The capability to communicate with all appropriate emergency personnel at facilities and in the field was adequately demonstrated. All activities described in the demonstration criteria for this criterion were carried out in accordance with the plan and procedures and the extent of play agreement.

The Callaway County Emergency Operations Center (EOC) is located in the Callaway County Sheriff Building in Fulton, Missouri. The EOC's primary communications is through commercial telephone lines.

Backup communications is provided through the utility provided Backup Emergency Radio System (BERS), UHF 800 Mhz trunk system. This system is also located in the Missouri State EOC, Montgomery, Gasconade, Callaway, and Osage County EOCs. The system was operated and utilized as designed with no problems or delays.

Emergency Classification Levels were received via the Sentry System, a utility developed dedicated audible alarm message system. The system has terminals located in the EOC and the 911 Center. Additionally, the system is located in the Missouri State EOC, Montgomery, Gasconade, and Osage County EOCs. This system is Microsoft Outlook based, and interconnected through dedicated telecommunication lines, which operated without problems or delays.

The EOC also has access to multiple radio systems, which provides them the capability to communicate with the Missouri EOC, other State Agencies, County Sheriffs in Montgomery, Gasconade, Callaway, and Osage Counties, local police, and point-to-

point operations. Additionally, the County EOC has other communications capabilities, such as facsimile, cellular phone, and email systems.

All communications with outside agencies, State, County, Utility, and local emergency services organizations were carried out without undue delay or breakdowns.

Criterion 1.e.1: This criterion was adequately demonstrated in accordance with plans, procedures, and the extent of play agreement.

Emergency response equipment stored at the Callaway/Fulton county Emergency Operations Center (EOC) included self protection kits for the EOC staff, re-entry team dosimetry, and dosimetry for issuance to supporting response organizations. A total inventory of this equipment included: 200 Landauer Type P Luxel whole body dosimeter badges (TLD's) and one control badge (calibration date January 1, 2007), 50 Stephen model 0-5R direct reading dosimeters, 50 Bendix CD V-742 0-200R direct reading dosimeters, and 150 Arrow Tech Model 725 0–5R direct reading dosimeters. All direct reading dosimeters calibration and leak check dates were March of 2007. There were 22 dosimeter chargers available for use in the EOC. In contradiction to the ORO plans, three instrumentation kits were not available for inspection. The 0-5R direct reading dosimeters scale was sufficient to read the specified administrative reporting level of 1R. This dose limit was posted in the EOC.

Inspection of available potassium iodide (KI) kits was performed. The total number of 14 tablet blister packs available was sufficient for emergency response and is further explained in the Annual Letter of Certification. All KI was of the lot number P03-6 with an expiration date of August, 2013. Instructions about using KI were posted in the EOC and were also available from an instruction sheet within each blister pack kit. Control of the KI kits within the EOC was relegated to the Public Health Officer in the EOC.

All signs, maps, and status boards were up to date and in good condition. All computers, faxes, and projection gear, were operational.

Traffic and access control personnel have appropriate equipment (e.g. vehicles, barriers, traffic cones, and signs, etc.) available.

The official EOC time piece was synchronized. At 0827 a radioactive release initiated and was terminated at 1232. A General Emergency was declared at 10:00 and the

order for emergency workers within the EPZ was given at 11:02. According to ORO plans and procedures, a direct reading dosimeter correction factor of 5 was used.

Criterion 2.a.1: This criterion was adequately demonstrated in accordance with plans, procedures, and the extent of play agreement.

The Interim Emergency Management Director (EMD) at the Callaway/Fulton county Emergency Operations Center (EOC) exercised good decision making with regard to emergency worker exposure control during the exercise. The EMD performed regular briefings and updates to the EOC staff.

According to plans and procedures, the State will advise the Callaway EOC EMD and Public Health Officer (PHO) about emergency exposures. A direct reading dosimeter correction factor of 5 is used during emergency exposure situations to correct dose readings. At the recommendation of the utility, the State will order the use of potassium iodide (KI) and the Callaway EMD will direct it to be issued by the Public Health Officer.

During the exercise, radiological release initiated at 0827 and progressed through the various emergency levels and the release terminated at 1232. A Site Area Emergency was declared at 0830 and personnel in the EOC began closely tracking wind speed and direction. Evacuations of special needs populations and a second protective decision to evacuate sub areas C1, C3, C4, and C11 was made at 1017. Projected exposures to emergency personnel were being provided to the EOC by the utility.

Upon direction from the State EOC at 1102, the Interim EMD directed the PHO to issue Potassium Iodide (KI). The PHO briefed the EOC staff about the use of KI. The decision to issue and use KI was based upon the data from the utility relating to projected thyroid dose. Random interviews of the EOC staff, PHO, and one security force emergency responder indicated that the authority to increase exposure limits and/or take KI rested with the State EOC. It was also indicated that evacuation decisions would be made and KI would be ordered taken with regard to a projected dose of 5 Rem total effective dose equivalent to the thyroid. Such decisions were based upon a predetermined direct reading dosimeter limit of 1 R. This administrative level was posted within the EOC.

The EOC volunteer staff was organized, professional and well trained.

Criterion 2.b.2: This criterion was adequately demonstrated in accordance with the

plans, procedures, and extent of play agreement.

At 0838 the Callaway County/Fulton Emergency Operations Center (EOC) received notice of a Site Area Emergency (SAE) Emergency Classification Level (ECL) from the Callaway Nuclear Power Plant. The recommendation on the Sentry System notification and discussed in a subsequent conference call was to place animals on stored feed and water. The County Commissioners and the Mayor of Fulton concurred with the recommendation at 0847. The sirens were sounded at 0853 to alert the public to the Site Area Emergency classification.

At 1000 the EOC received notice of a General Emergency (GE) ECL from the Callaway Nuclear Power Plant. The recommendation was to evacuate the 2 mile radius and out to 5 miles in sectors C, D, E, and F. The Emergency Management Director (EMD) conferred with the plant, the State of Missouri, and the other risk counties in a subsequent conference call. At 1006 the EMD discussed the recommendation with the EOC Health Department. At 1008 the EMD discussed the recommendation with the Sheriff. At 1017 the County Commissioners and the Mayor of Fulton decided to evacuate subareas C1, C3, C4, and C11 which coincided with the recommended sectors. At 1032 sirens were sounded and the Emergency Alert System (EAS) message was transmitted shortly afterwards by the State EOC.

At 1102 the State of Missouri recommended Potassium Iodide (KI) for emergency workers in the Emergency Planning Zone (EPZ). KI is not specified for use by the general public in the plan. After reviewing the projected doses on the Sentry System notification forms received to that point, the Commissioners and Mayor decided at 1106 to recommend ingestion of KI by emergency workers. An announcement was made by the EMD to the EOC staff at 1107 that KI is being recommended for emergency workers. A briefing by the County Health Department to the EOC staff followed shortly thereafter reminding the staff how to instruct emergency workers on the KI recommendation.

At 1232 a wind shift caused the Callaway Nuclear Power Plant to recommend adding sector G to the evacuation areas. At 1242 the Commissioners and Mayor added subareas C2, C5, C6, and C7 to the evacuation areas. At 1258 the sirens were sounded again and the EAS message was transmitted shortly afterwards.

Criterion 2.c.1: This criterion was adequately demonstrated in accordance with the

plans, procedures, and extent of play agreement.

Following receipt of the Alert Emergency Classification Level (ECL) at the Callaway County/Fulton Emergency Operations Center (EOC) at 0734, the Transportation Officer of the EOC called the four school districts (Fulton Public Schools, South Callaway R-II School District, St. Peters Catholic School, and the North Callaway R-I School District) between 0734 and 0737.

Subsequent Protective Action Decisions made by the County Commissioners and Mayor of Fulton were not applicable to the schools since they were not in session. An interview was held with the Transportation Officer of the EOC. He described how he would direct the transportation providers of school children to the Reception and Care Centers. The Transportation Officer also was aware of the special population groups at the Callaway County Correctional Facility, Fulton Day Care Center, Fulton Pre-School, Missouri Girls Town, Riverview Nursing Center, and Cover-a-lot Day Care Center.

At 1242 the Commissioners and Mayor simulated directing the evacuation of subarea C7 as a result of the Callaway Nuclear Power Plant recommendation. At this same time they also simulated directing Shelter-in-Place for the Riverview Nursing Center in Mokane, MO taking into consideration the risk of evacuation versus the risk of avoided dose.

Criterion 3.a.1: All activities described in the demonstration criteria for this criterion were carried out in accordance with the plan and the extent of play agreement.

At the Callaway/Fulton County Emergency Operations Center (EOC), authority to dispatch requested emergency workers rests with the Emergency Management Director in coordination with the cognizant agency(s) of the emergency response personnel (i.e. fire, medical rescue, security, etc.). Emergency workers and EOC personnel began staffing the EOC upon notification of an Unusual Event at 0718. A skeleton crew was available at the EOC at that time. Upon issuance of an Alert ECL, recall and notification of all EOC staff began. The EOC was fully staffed at about 0800.

The Public Health Officer and support staff were observed preparing dosimetry packets and zeroing direct reading dosimeters (DRD's). All packets containing KI tablets were from Lot # P03-6 with an expiration date of August, 2013. The EOC was posted with written instructions about administrative exposure limits. The emergency response personnel exposure limit was set at 1R. At 0830, a Site Area Emergency was declared

and the PHO and staff prepared dosimetry packets in support of people working at the EOC as well as packets in support of emergency response workers which would soon arrive at the EOC.

The PHO issued a dosimetry packet to each EOC worker. This packet contained a Landauer Type P Luxel Whole Body Dosimeter Badge (TLD), a 14 dose blister packet of KI tablets, instructions about the use and hazards of KI, and instructions about the proper use of permanent dosimetry. The calibration date on the TLD's was 01/01/2007. Each emergency worker packet contained a Landauer Type P Luxel Whole Body Dosimeter Badge, a DRD, a 14 dose blister packet of KI tablets, instructions about the use and hazards of KI, and instructions about the proper use of permanent dosimetry. If an emergency worker was issued a packet, the worker was instructed to read their DRD every thirty minutes. DRD calibration and leakage test dates were March, 2007.

The PHO issued herself a secondary direct reading dosimeter as well as an individual in the Emergency Communications Center. The function of these two individuals was to act as their respective area (group) monitors. Both individuals read their DRD's every thirty minutes. The PHO was observed reading her DRD at least every thirty minutes and recording the readings on the appropriate forms.

The PHO was observed briefing individuals who received dosimetry and instructed them to read all written instructions within the packets. The PHO and staff instructed emergency workers how to wear their TLD and DRD and what to do in case a DRD was dropped. The posted dose limit values were reviewed as well as actions which might warrant getting higher doses. The PHO noted that to receive higher doses than 1R by DRD, authorization would have to be obtained from the State EOC. Within the EOC, all workers were issued TLD's well in advance of the General Emergency.

Criterion 3.b.1: The staff of the Callaway/Fulton County Emergency Operations Center (EOC), successfully demonstrated this criterion in accordance with Callaway/Fulton County Basic Plan Annex J and K and the extent of play agreement.

For institutionalized individuals, potassium iodide (KI) will be made available to the County Jail for administration to inmates and to non-evacuating special facilities for administration to residents if evacuation of the City of Fulton is implemented as a protective action. KI packets will be sent to special facilities which do not plan to evacuate (e.g., nursing homes, hospital) for use by the staff. Additionally, potassium iodide will be made available to the County Jail for administration to inmates, and to

non-evacuating Special Facilities for administration to residents if evacuation of the City of Fulton is implemented as a protective action.

The overall responsibility for the decision to take KI rests with the Department of Health and Senior Services (DHSS) in the State Emergency Operations Center (EOC).The decision, based upon radiological and meteorological data from the utility, will be broadcast to the Callaway/Fulton Country EOC via dedicated communications lines and EAS messages.

During exercise play:

At 1102, the decision was made for emergency workers to take KI in the EPZ. The Interim Emergency Management Director at the EOC directed the Public Health Officer to make preparations for EOC personnel to do the same. The PHO briefed EOC personnel verbally within the EOC. The PHO included precautions, required dosage (one tablet per day), and instructions for individuals who are allergic to KI.

Prior to issuing dosimetry packets, the PHO and staff prepared them. Each packet contained a 14 dose blister pack of KI tablets, written instructions on how to use the KI, instructions on how to document its use as well as the hazards and side effects associated with its use. The PHO and staff at the EOC issued the packets and the record sheets to individuals who required the packets. The PHO would collect all the issuance sheets for KI at the EOC and retain them as a permanent record. There were also supplemental instructions relating to KI posted in the EOC.

During the interview process of emergency workers, their knowledge of why to take KI and when to take it was verified. Upon issuance of KI kits to individuals, an issue log was also filled out at the PHO work station. This was the primary means of tracking individuals who were issued the radio-protective drug from the EOC.

Criterion 3.c.1: This criterion was adequately demonstrated in accordance with the plans, procedures, and extent of play agreement.

Special populations will be notified by the Callaway County/Fulton Emergency Operations Center (EOC) Transportation Officer.

At 0847 the County Commissioners and Mayor of Fulton decided to place animals on stored feed and water. At 0900 the Transportation Officer began calling the two special

needs individuals in the potential evacuation zone. At 0914 the Fire Coordinator of the EOC inquired into the location of the two individuals. At 0920 the Fire Coordinator reported that Fire Department personnel are standing by if needed to assist in the evacuation of the two special needs individuals. Also at 0920 the Transportation Coordinator responded to the Fire Department with the address of the two individuals and that they would be transported to the Reception and Care Center, Lincoln University. At 1000 the EOC received a recommendation to evacuate sectors C, D, E, and F out to 5 miles. While the Commissioners and Mayor were reviewing the recommendations and projected dosage, the Emergency Management Director directed the Transportation Officer to dispatch transportation to the now three special needs individuals that would be in that area. At 1007 the Transportation Officer simulated dispatching the Serve Bus Company to send driver, assistant, and van to transport the three special needs individuals to Lincoln University. At 1042 the Transportation Officer advised the three special needs individuals are being transported to the Hearnes Building at the University of Missouri instead of Lincoln University.

At 1235 a wind shift was reported to the EOC with a recommendation to add sector G to the evacuation. At 1242 the Commissioners and Mayor decided to evacuate additional subareas C2, C5, C6, and C7. At 1243 the Transportation Officer simulated contacting an additional special needs person in Steedman, MO to inquire if they needed assistance. At 1251 the Commissioners and Mayor decided to have the Riverview Nursing Center Shelter-in-Place due to increased dosage that would be obtained during transportation. At 1257 the Transportation Officer reported that a driver has been dispatched to transport the fourth special needs individual.

The EOC Transportation Officer stated if backup transportation was needed, he would contact the Fire Coordinator in the EOC and request fire department and ambulance assistance. The Transportation Officer was working from an April 2005 listing of Special facilities that had hand written updates completed in July 2007.

Checks were done to verify Administrators for special facilities had current plans. The Callaway County Correction Center, the Fulton Treatment Center, the North Callaway R-I School District, and the Rosa Parks Center all had plans updated in September 2004. The South Callaway R-II School District had a plan dated November 2004. The Missouri School for the Deaf had a plan dated March 2007.

The EOC conducts periodic tests of the Telecommunications Devices for the Deaf (TDD) system on the first Tuesday of each month.

The Serve Bus Company was called, not simulated, by the Transportation Officer of the EOC at 0925 describing the exercise taking place and the simulated need for transportation. This represents one-third of the transportation providers for the ORO according to the extent of play agreement.

Criterion 3.c.2: This criterion was adequately demonstrated in accordance with plans, procedures, and the extent of play agreement.

Schools were evaluated out-of-sequence and additional information was obtained via interview. School was not in session and an interview with the Transportation Officer at the EOC was conducted. The Transportation Officer demonstrated satisfactory knowledge of the procedure and method by which to accomplish evacuation of Special Needs Populations. Preparations for school evacuations would begin at the ECL of Alert. An examination of the Transportation Officer's Procedure # 4 was made. This procedure contained a listing of emergency transportation resources for such populations as well as emergency contact phone numbers. A call down list provided by the utility (AMEREN) would be used by the county Emergency Communications Center to facilitate evacuation of school children if in session. The Interim EOC Director would have received orders from the County Commissioners at the behest of the State EOC to perform these evacuations with respect to the affected sectors.

There was a declaration of a General Emergency at 0952, but no other special needs populations were effected.

Criterion 3.d.1: This criterion was adequately demonstrated in accordance with the plans, procedures, and extent of play agreement.

Two independent interviews were conducted with Callaway County Sheriff's Deputies and an interview was conducted with the Callaway County Sheriff.

Both Deputies were aware that the Sheriff has the responsibility for providing Traffic and Access Control and that the Sheriff would deploy personnel to carry out those duties.

Traffic and Access Control Points (TACPs) are pre-identified in the plan. There is a map noting all TACPs in the Callaway County/Fulton Emergency Operations Center (EOC).

Both Deputies stated that any coordination with other local law enforcement, Missouri Highway Patrol (MHP), or National Guard would go through the Sheriff at the EOC. They both stated any needs or coordination with the Missouri Department of Transportation or other local transportation departments would go through the Transportation Officer at the EOC via the Sheriff.

The Sheriff was aware that TACPs would be established at the Site Area Emergency (SAE) Emergency Classification Level (ECL) or General Emergency (GE) ECL if that is the initiating condition.

Regarding traffic and access control on water, rail, and air, the Deputies stated they would coordinate any needs in these areas through the Sheriff. The Sheriff stated that water control would be coordinated through the Missouri Department of Conservation and the MHP. Air control would be coordinated through the National Guard and the MHP.

Both Deputies were aware their administrative reporting limit on their dosimetry is 1R and that their maximum value is 5R. They were also aware that Potassium Iodide (KI) blocks radiation, that the dose is one tablet per day, and that ingestion is voluntary. They both stated they would receive notice that KI is recommended through the Sheriff at the EOC.

Both Deputies stated that equipment available to establish traffic and access control included their vehicle and equipment from the County Road and Bridge Department such as barricades or trucks.

The Sheriff stated that Reception and Care Centers are located at the University of Missouri in Columbia, Lincoln University, Montgomery County R-II High School, and Hermann Middle School. Supplement 5 to Procedure 2 was produced for the evaluator also showing that these same four sites are potential locations to establish an Emergency Worker Monitoring and Decontamination Center.

Following the EOC's decision at 1017 to evacuate subareas C1, C3, C4, and C11, the Sheriff simulated establishing TACPs using five Callaway County Sheriff's Deputies and 5 Fulton Police Officers. A wind shift occurred and at 1242 subareas C2, C5, C6, and then C7 were added. The Sheriff worked with Fulton City to shift TACPs appropriately and timely and then requested via the Emergency Management Director more staff to conduct routine law enforcement duties.

Criterion 3.d.2: This criterion was adequately demonstrated in accordance with the plans, procedures, and extent of play agreement.

At 0857 the Callaway County/Fulton Emergency Operations Center (EOC) was notified of a simulated overturned tractor trailer truck at State Route O, East of the bridge below Haymark Hill, 4 miles from Fulton. At 0900 the Callaway County Sheriff in the EOC requested assistance from the Road and Bridge staff in the EOC.

At 0921 the EOC received notice of an injury accident involving two automobiles on State Route C at State Route VV. The accident was blocking one lane of traffic.

At 0937 the Sheriff and Road and Bridge staff at the EOC conferred with the Fire Coordinator who reported that EMS has been sent to the scene of the two car automobile accident.

At 0940 the Road and Bridge staff advised the EOC that the overturned truck has been cleared from State Route O using County Road and Bridge equipment and the truck will no longer impede any evacuations. At 1005 the Road and Bridge staff advised the EOC that the wreckage from the two car accident had been cleared from State Route C.

Criterion 5.a.1: The activities associated with the primary alerting and notification of the public was completed in a timely manner following the initial decision of authorized offsite staff to notify the public. All activities were adequately demonstrated according to the evaluation criterion and the plan.

At 0838 Callaway County received the Sentry message of Site Area Emergency (SAE) and the utility Protective Action Recommendation (PAR) to place dairy animals on stored feed and covered water.

At 0847 coordination of the decision for the Protective Action was made via telephone conference call. The decision was to accept the utility recommendation and activate the Emergency Alert System (EAS) with message #1 (EAS System Header) and follow-up with messages #2 (Site Emergency Notification) and #4 (Rumor Control Notification).

At 0852, Callaway County EOC received notification from the Governors' Authorized Representative (GAR) to sound the sirens immediately. The Callaway County Emergency Management Director immediately contacted the 911 Center to sound the

sirens. At 0853 the supervisor of the 911 Center simulated sounding the sirens.

Recommendation:

Procedures for Callaway County should be modified to include announcing over the Backup Emergency Radio System (BERS) that the sirens are sounding once the 911 Center has confirmed they have activated them. Furthermore, it was not apparent how long the sirens sound and when the EAS was actually began broadcast. Once again an announcement over the BERS from the State EOC once the EAS has started broadcast would be good information for the Risk Counties.

Criterion 5.a.3: This criterion was adequately demonstrated in accordance with the plans, procedures, and extent of play agreement.

An interview was conducted with the Callaway County Sheriff at the Callaway County/Fulton Emergency Operations Center (EOC). There are no FEMA approved exception areas. If there were to be a siren failure, the Sheriff discussed how he would conduct back up route alerting. Resources available to this mission include 10 Callaway County Sheriff and Fulton City Police vehicles. The Sheriff in the EOC would assign and notify the resources of the areas they need to cover. The message provided to the public would be that there is an incident at the Callaway Nuclear Plant and to tune to KTXY radio for further information. The message would be delivered via the public address system in the law enforcement vehicle.

Criterion 5.b.1: The activities associated with providing accurate emergency information and instruction to the public and the news media in a timely manner were adequately demonstrated according to the evaluation criterion and the plan.

At 0718, the Sentry notification of the Notification of Unusual Event (NOUE) was received at the Callaway County 911 Center. Immediate public notification is not required at this level.

At 0734, the Sentry notification for the Alert Level was received by the Callaway County Emergency Operations Center (EOC). Immediate public notification is not required at this level.

At 0800 the State of Missouri issued News Release #1 concerning the Alert condition at

the Callaway Nuclear Plan. The release was received at the Callaway County EOC at 0813.

At 0838, Callaway County received a Sentry notification of the Site Area Emergency (SAE). The Protective Action Decision (PAD) to place dairy animals on stored feed and covered water was coordinated with the State of Missouri and other Risk Counties. The Initial EAS and follow-up messages were sent, additional information is covered in criteria 5a1.

At 0855 the State of Missouri issued News Release #2 concerning the Site Area Emergency (SAE) condition at the Callaway Nuclear Plan. The release was received at the Callaway County EOC at 0913.

At 0915 the State of Missouri issued News Release #3 concerning the activation of state resources. At 1100 the Public Information Officer received New Release #4 and realized they had not received #3, the state was immediately contacted to send the missing release. Release #3 was received at the Callaway County EOC at 1109.

At 1000, Callaway County received a Sentry notification of the General Emergency (GE). The Protective Action Decision (PAD) to evacuate sub areas C1, C3, C4, & C11 was coordinated with the State of Missouri and the other Risk Counties. At 1017 EAS message #1 (System Header), #3, #4, #6, #8C-1, #8C-3, #8C-4, and #8C-11 were coordinated and concurred upon for appropriate evacuation. The sirens were sounded at 1032 and the public information was broadcast shortly thereafter.

At 1030 the State of Missouri issued News Release #4 including the evacuation of areas from the Risk Counties. The release was received at the Callaway County EOC at 1100.

At 1102, the Governors' Authorized Representative (GAR), made the decision to impose an Agriculture Embargo for areas 50 miles downwind of the Callaway Plant. This information was provided in News Release #5 which was received at the Callaway County EOC at 1137.

At 1210 the State of Missouri issued News Release #6 for the Recommendation for Emergency Workers to consume Potassium Iodide (KI). The release was received at the Callaway County EOC at 1224.

At 1232, Callaway County received notification of a wind shift. The Protective Action Decision (PAD) to evacuate sub areas C-2, C-5, C-6, and C-7 was coordinated with the State of Missouri and the other Risk Counties. At 1242 EAS message #1 (System Header), #4, #6, #8C-2, #8C-5, #8C-6, and #8C-7 were coordinated and concurred upon for appropriate dissemination. The sirens were sounded at 1258 and the public information was broadcast shortly thereafter.

At 1300 the State of Missouri issued News Release #7 for Surface Water Supply Restrictions. The release was received at the Callaway County EOC at 1307.

Follow-up information and instructions was provided to the public in a timely manner. No delays or obstruction were observed in the decision, message creation, and recording and broadcast of messages to the public. Information contained in News Releases was consistent with information provided through immediate public broadcast.

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

a. MET: 1.a.1, 1.b.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2, 2.c.1, 3.a.1, 3.b.1, 3.c.1, 3.c.2, 3.d.1, 3.d.2, 5.a.1, 5.a.3, 5.b.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. NOT DEMONSTRATED: None
e. PRIOR ISSUES - RESOLVED: None
f. PRIOR ISSUES - UNRESOLVED: None

## 4.2.2.3. South Callaway R-II Schools

Criterion 1.e.1: Equipment, maps, displays, dosimetry, potassium iodide (KI), and other supplies are sufficient to support emergency operations in accordance with the plans, procedures, and the Extent of Play Letter.

The South Callaway R-II Schools are located near Mokane, Missouri. The district has an adequate supply of appropriate dosimetry, both Arrowtech self reading (0-5R) and non-direct reading (TLDs). There is a minimum of 23 packets maintained, one for each of the 23 buses. Each packet contains one 0-5R Arrowtech dosimeter; one TLD; one package of 10 KI tablets and instructions for the use of the above.

The self-reading dosimeters had been inspected, inventoried and operationally checked by the State Radiological Officer in 2007. The KI packages have an expiration date of August 2013.

The State of Missouri does not stockpile KI for distribution to the general public.

Criterion 3.a.1: Appropriate dosimetry and procedures for emergency workers were followed. Periodically and at the end of each mission, dosimeters were read and recorded. The readings were recorded on the appropriate exposure record or chart. The management of radiological exposure to emergency workers was accomplished in accordance with the plans and procedures.

The South Callaway R-II Schools are located near Mokane, Missouri. The School Superintendent, Principal, Transportation Officer, and a Bus Mechanic \Driver attended the interview.

The Callaway Schools maintain their dosimetry kits in their transportation facility. One kit is available for each of their 23 buses. The transportation director is aware of the procedures for the issuance and usage of dosimetry. The director is also aware of how to conduct a briefing for radiological exposure control to Emergency Workers (bus drivers).

This briefing would include instructions and demonstration of zeroing dosimeters, recording of dosimetry, issuance and wear location, reading and recording dosimeters at 30-minute intervals, and an explanation of the exposure record card.

The briefing would also include the use of TLD's (permanent record), the 1R dose limit for emergency workers the 5R maximum, and the 25R dose limit for lifesaving.

Criterion 3.b.1: KI and appropriate instructions were available should a decision to recommend use of KI be made. Appropriate record keeping for the administration of KI to emergency workers and institutionalized individuals was satisfactorily demonstrated In accordance with the plans, procedures, & the Extent of Play Letter.

The South Callaway R-II Schools is located on Route C, just outside of Mokane, Missouri. The School District staff are aware that the KI is stored in the transportation facility with the appropriate instructions should a decision to recommend use of KI be

made. They are also aware that the recommendation for Emergency Workers to take KI is made from the State of Missouri Health. Appropriate record keeping for the administration of KI to emergency workers was satisfactorily demonstrated.

The School District staff is also familiar with documenting who took or did not take KI. An adequate supply of KI is maintained for up to 23 Emergency Workers (bus drivers).

The KI packages have an expiration date of August 2013.

The State of Missouri does not stock pile KI for distribution to the general public.

Criterion 3.c.2: The capability of school officials to implement Protective Actions for school children and staff personnel was adequately demonstrated. All activities described in the demonstration criteria for this criterion were carried out in accordance with the plan and the extent of play agreement.

The South Callaway R-II Schools are primarily located one mile north of Mokane, Missouri. This district employs approximately 154 staff and has approximately 930 students.

An interview was conducted with Superintendent, transportation director, Principal, and a bus driver. The staff was knowledgeable that the facility would be informed of an incident at the Callaway Nuclear Power Plant by the Callaway County EOC.

Because the school district is located within the EPZ, the students and staff can either be sheltered in place or evacuated. The Superintendent was aware that if the Protective Action Decision were made to shelter, they would follow the procedures in the plan. They also understand that if the decision is to evacuate, residents will be transported to the Jason Gym and Soldier's Hall Reception and Care Center in Jefferson City.

The district maintains their own vehicles and is prepared to evacuate in one trip to the Reception and Care Center. Before evacuation, the Transportation Director would issue dosimetry packets to each bus driver. The Transportation Director and bus driver were familiar with the operation and record keeping for dosimetry.

The district staff is very knowledgeable of their roles in protecting the health and safety

of the students and staff under their care. They understood the district plan concerning an incident at the power plant. Communications capabilities are covered in Criterion 1d1.

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

a. MET: 1.e.1, 3.a.1, 3.b.1, 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. NOT DEMONSTRATED: None
e. PRIOR ISSUES - RESOLVED: None
f. PRIOR ISSUES - UNRESOLVED: None

## 4.2.2.4. North Callaway R-I Schools

Criterion 1.e.1: This criterion was adequately demonstrated pursuant to established plans and procedures and in accordance with the negotiated extent of play agreement.

Equipment at the schools is sufficient and consistent with the role assigned to the facility in the plans and/or procedures in support of emergency operations.

None of the schools are within the EPZ of Callaway NPP. Accordingly, the protective role of the school district is to ensure that students (approximately 150) living within the EPZ are safely delivered to school or held at school for parental pickup in the event of an emergency.

Copies of plans and procedures are readily available to staff, sufficient communications (both landline telephone and radio) are maintained to affect this role, and personnel are properly trained in their responsibilities.

Criterion 3.c.2: The North Callaway R-1 School District is a public school district providing educational services to a predominantly rural population. A portion of the district lies within the 10-mile Emergency Planning Zone (EPZ) for the Callaway Nuclear Power Plant. There are three elementary schools (K-8) located at Auxvasse, Williamsburg, and Hatton-McCredie. The High School (9-12) is just north of Kingdom City. None of the schools are within the EPZ. A bus garage is located near the High

School.

The School district employs a staff of 180 and has an average total enrollment of 1270. Approximately 120 students reside within the EPZ.

The protective actions undertaken by the district are (a) to keep students at the school if a Site Area Emergency (or higher) is delcared by Callaway NPP during the school day, (b) to bring students from the EPZ to the school if they are already en route at the time of declaration and (c) to not return students to the EPZ following a declaration.

The District will maintain communication with the Callaway County emergency operations center to ensure advisories are made to parents via media and to coordinate supplying transportation resources to the county should that be necessary.

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

a. MET: 1.e.1, 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. NOT DEMONSTRATED: None
e. PRIOR ISSUES - RESOLVED: None
f. PRIOR ISSUES - UNRESOLVED: None

# 4.2.2.5. Callaway County Jail

Criterion 1.e.1: This criterion was adequately demonstrated pursuant to existing plans and procedures and in accordance with the negotiated extent of play agreement.

The Callaway County Corrections Center is a place of incarcertation for a mixed population of convicted offenders. Relocation of this population is not an option.

Dosimetry and Potassium Iodide supplies are provided by the colocated Callaway County Emergency Management Agency to the facility in the event of an emergency at Callaway NPP.

Adequate numbers of copies of plans and procedures are available to all staff. Materials to assist staff in preparing the center for shelter in place operations are available.

Criterion 3.a.1: This criterion was adequately demonstrated pursuant to existing plans and procedures and in accordance with the negotiated extent of play agreement.

Kits of dosimetry, including high and low-range direct-reading dosimeters, OSDs, records-keeping and instruction materials and Potassium Iodide (KI) doses, instructions and record-keeping forms, will be delivered to the Callaway County Corrections Center by the Callaway County Emergency Management Agency in the event of an emergency at Callaway NPP. All staff are appropriately trained in zeroing and using the dosimetry and recording its use, and all have been trained in the indicators for, prohibitions against and records-keeping required for the ingestion of KI.

All KI doses maintained by Callaway County bear an expiration date of Augusut, 2013.

It was noted that KI would also be administered to inmates should an event necessitate the sheltering of the inmate population; relocation of these persons is not an option.

Criterion 3.b.1: This criterion was adequately demonstrated pursuant to existing plans and procedures and in accordance with the negotiated extent of play agreement.

Potassium Iodide tablets would be provided to Callaway County Corrections Center staff and inmates by the Callaway County Emergency Management Agency (colocated in the same building) in the event of an emergency at Callaway NPP. Ingestion would only follow specific recommendations from the Missouri Department of Health.

Proper forms indicating the dose, indicators for and against use and ingestion records are provided to the facility by the county when needed.

All staff are trained in KI administration and record-keeping.

Criterion 3.c.1: This criterion was adequately demonstrated pursuant to existing plans and procedures and in accordance with the negotiated extent of play agreement.

The Callaway County Corrections Center has a maximum inmate population of 116 and a total staff (over three shifts) of twenty-four. Relocation of staff and inmates is not an option in the event of an emergency at the Callaway NPP. Shelter-in-place is the course of action pursuant to existing plans and procedures.

Staff are thoroughly familiar with the procedures to be used in the event sheltering in place becomes necessary. In addition to limiting ingress and prohibiting egress and the closing down of all ventilation, etc., plans call for contact with neighboring jurisdictions having prisoners resident in the facility to seek their relocation to reduce the sheltered population (if feasible; i.e., no release in progress).

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

a. MET: 1.e.1, 3.a.1, 3.b.1, 3.c.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. NOT DEMONSTRATED: None
e. PRIOR ISSUES - RESOLVED: None
f. PRIOR ISSUES - UNRESOLVED: None

## 4.2.2.6. Rosa Parks Juvenile Center

Criterion 1.e.1: This criterion was adequately demonstrated pursuant to existing plans and procedures and in accordance with the negotiated extent of play agreement.

At the time of this exercise, both Fulton Treatment Center and Rosa Parks Center were under joint management, and the exercise interview was conducted at Fulton Treatment Center.

Both facilities are places of incarcertation/treatment for juveniles, age 12 through 20, who have been found guilty of committing felony offenses.

A sufficient supply of plans/procedures, maps and other items required for the evacuation/relocation of the staff and inmates was demonstrated to be on-hand. Sufficient numbers of vehicles (both mini-buses and automobiles) are available. All but one auto have radios permitting two-way comunication. Additional resources are available from Callaway County. Potassium Iodide supplies, if required as both facilities anticipate evaucation/relocation prior to release from the plant, would be supplied by the Callaway County Emergency Management Agency.

Criterion 3.a.1: This criterion was adequately demonstrated pursuant to existing plans and procedures and in accordance with the negotiated extent of play agreement.

At the time of this exercise, both Fulton Treatment Center and Rosa Parks Center were under joint management, and the exercise interview was conducted at Fulton Treatment Center.

Both facilities are places of incarcertation/treatment for juveniles, age 12 through 20, who have been found guilty of committing felony offenses.

The center administrator or his/her designee is in charge of all activities associated with protective actions. All staff are thoroughly familiar with the plans and are trained in their responsibilities.

The preferred protective action for both facilities is evacuation/relocation to another state facility, either in Mexico, Missouri, or Columbia, Missouri. A total of 46 inmates (13 at Rosa Parks and 33 at Fulton) would be evacuated.

Relocation, pursuant to plan, would begin automatically at Site Area Emergency and with the concurrence of the administrator or the next designated person. While the facility could provide interim shelter in place protection, evacuation be undertaken barring any major obstacles.

Dosimetry, both high and low-range direct-reading dosimeters and Optically Stimulated Dosimeters will be provided to the staff of both Rosa Parks and Fulton Treatment by the Callaway County Emergency Management Agency.

Staff evidenced a good understanding of record-keeping, turnback and administrative values and dosimetry procedures. Continuing training will be provided by the State Emergency Management Agency.

Criterion 3.b.1: This criterion was adequately demonstrated pursuant to existing plans and procedures and in accordance with the negotiated extent of play agreement.

At the time of this exercise, both Fulton Treatment Center and Rosa Parks Center were under joint management, and the exercise interview was conducted at Fulton Treatment Center.

Both facilities are places of incarcertation/treatment for juveniles, age 12 through 20, who have been found guilty of committing felony offenses.

Through interview, personnel evidenced an understanding of the reasons for the administration of Potassium Iodide (KI); however, the ingestion of KI is not foreseen as the administration and staff plan on completely relocating both inmates and staff quickly at or just before a Site Area Emergency is declared.

Should unforeseen circumstances warrant a change in this plan, the Callaway County Emergency Operations Center would be contacted to provide both KI and a briefing officer.

Criterion 3.c.1: This criterion was adequately demonstrated pursuant to existing plans and procedures and in accordance with the negotiated extent of play agreement.

At the time of this exercise, both Fulton Treatment Center and Rosa Parks Center were under joint management, and the exercise interview was conducted at Fulton Treatment Center.

Both facilities are places of incarcertation/treatment for juveniles, age 12 through 20, who have been found guilty of committing felony offenses.

The center administrator or his/her designee is in charge of all activities associated with protective actions. All staff are thoroughly familiar with the plans and are trained in their responsibilities.

The preferred protective action for both facilities is evacuation/relocation to another state facility, either in Mexico, Missouri, or Columbia, Missouri. A total of 46 inmates (13 at Rosa Parks and 33 at Fulton) would be evacuated.

Relocation, pursuant to plan, would begin automatically at or before Site Area Emergency and with the concurrence of the administrator or the next designated person. While the facility could provide interim shelter in place protection, evacuation would be undertaken barring any major obstacles.

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

a. MET: 1.e.1, 3.a.1, 3.b.1, 3.c.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. NOT DEMONSTRATED: None

e. PRIOR ISSUES - RESOLVED: None
f. PRIOR ISSUES - UNRESOLVED: None

# 4.2.2.7. Gasconade County Emergency Operations Center

Criterion 1.a.1: This criterion was adequately demonstrated in accordance with the plans, procedures, and extent of play agreement. Pre-positioning was not permitted by the extent of play agreement.

The Gasconade County Emergency Management Director (EMD) serves as the Emergency Operating Center (EOC) Director during Callaway Nuclear Power Plant events. He maintains a current accurate roster of 31 EOC staff personnel, with alternates, that provides sufficient backup personnel for a 24-hour operation. Key personnel identified on this list, indicated by bold print, are the first to be notified.

During off hours, the EMD and the three County Commissioners are notified by phone and pager by the dispatcher at the 24-hour warning point, which is the County 911 center in Owensville, by land-line and by pager. Upon receipt and verification of the notice the EMD is notified and he requests that 911 Center personnel initiate the call down list which contains all EOC staff. Until the EOC is operational, all communications are received in the 911 center. When the EOC is activated all related communications are received in the EOC.

Notification of an Unusual Event, Emergency Classification Level (ECL) at Callaway Nuclear Power Plant was received at the Gasconade County 911 Center by telephone and fax machine at 0722. There are two fax machines available for this purpose, one in the 911 Center and one in the EOC, which is located in the basement of the County Court House.

As directed by the EMD the 911 Center staff began calling the EOC staff at 0737 following receipt of the alert ECL and completed the calls at 0750. Personnel began arriving at the EOC within five minutes of the initial call and 21 personnel were present at 0803 when the EMD declared the EOC operational and so informed the State Emergency Management Agency (SEMA). The initial notification and Emergency Classification Level (ECL) changes were received in the EOC over the SENTRY computer system operated by Ameren UE (Union Electric) and by the Back Up Radio

System (BURS) and did not require verification. The Alert was received at 0737, the Site Area Emergency at 0840 and the General Emergency at 1000.

At each change in ECL a roll call was taken by radio to ensure that all had received the information and the fax. The EOC staff was immediately notified verbally of ECL changes by the EOC Director.

Criterion 1.c.1: This criterion was adequately demonstrated in accordance with the plans, procedures, and extent of play agreement.

The Gasconade County Commissioners assisted by the Emergency Management Director (EMD) are in charge of the emergency response at this location. The EMD held numerous staff briefings and had each Emergency Operations Center (EOC) Staff member brief on their status in the emergency response.

The EMD coordinated response activities with the other risk Counties and the State EOC Staff before making decisions that affected Gasconade County. The County Commissioners make protective action decisions. Emergency Alert System messages are prepared at the Joint Information Center. The County furnishes information to them to be included, if necessary.

Plans, procedures, and check list were available in the EOC, they were used and followed throughout the exercise. All incoming and outgoing messages are logged, duplicated, and furnished to all key Staff members.

The County Commissioners made timely decisions throughout the exercise after receiving input from their staff.

Criterion 1.d.1: This criterion was adequately demonstrated in accordance with the plans, procedures, and extent of play agreement.

Adequate communications capabilities were demonstrated at the Gasconade County Emergency Operations Center (EOC). The primary communications system available in the EOC during the exercise was the SENTRY Computer system operated by Ameren U/E (Union Electric). The Back Up Radio System (BURS) serves as the main backup system. There are no dedicated lines in the EOC, however, five commercial telephone lines are available. In addition, wireless laptop conections are available. Two

low frequency radios provide redundant radio capability. Radio Amateur Civil Emergency Services (RACES) is available in the EOC but was not utilized during this exercise. Cell phones, portable, and mobile radios are available for police, fire, and Emergency Medical Service personnel. These systems allowed Gasconade County officials to communicate with all appropriate State, County, local municipal, school, and private organizations and locations. The primary and backup systems were tested early in the exercise and all were operable and remained so throughout the event.

The Public Information Officer (PIO) was in constant contact with her counterpart at the State Emergency Management Office, via commercial telephone throughout the exercise. All communications systems operated without problems during the exercise.

Criterion 1.e.1: This criterion was adequately demonstrated in accordance with the plans, procedures, and extent of play agreement.

Gasconade County officials at the Emergency Operations Center (EOC) demonstrated the adequacy of equipment, maps, displays, dosimetry, potassium iodide (KI), and other supplies to support emergency operations.

Maps and displays were adequate to provide information for decision making and for keeping participants abreast of events. Several maps and displays were available and utilized during the exercise. Maps included a detailed map of the 10-mile plume exposure pathway emergency planning zone (EPZ) and several maps of the County. The 10-mile EPZ map illustrated: sub-areas around the Callaway Nuclear Power Plant, a wind direction arrow, and all roadways, cultural features, topography, general population, transient population, and Special Facility Population. During the exercise the wind direction arrow was adjusted to reflect changes in wind direction. The most commonly used displays were the running log of key events on the Emergency Response Status Board and the display screen of the SENTRY system. The status board was updated within 5 minutes of an event.

Adequate numbers of appropriate dosimeters and potassium iodide (KI) are stored adjacent to the EOC. Dosimetry available included:

50 each, Landauer Type P Luxel Whole Body Dosimeter Badges;
20 each, Arrow-Tech (0-5 Rem, leak tested 23 Feb-01 Mar 2007,
Center Scale Verified 01-03 Mar 2007;
20 each, Bendix CD V742 (0-200 Rem, leak tested 23 Feb-01 Mar 2007

Center Scale Verified 01-03 Mar 2007;
50 each, foil wrapped packets of 14 tablets with expiration date of 2013;
2 each, CDV Model 6 SE Intel, Inc. dosimeter chargers;
15 each, CD V700 with pancake probe, calibrated 1/28/07
15 each, CD V715 Survey Meters, calibrated 1/28/07

Sufficient barriers, cones, flares, etc. are available for traffic and access control.

Criterion 2.a.1: This criterion was adequately demonstrated in accordance with the plans, procedures, and extent of play agreement.

The Emergency Management Director (EMD) and the County Health Department representative, who serves as the Radiological Officer (RO), were conscientious in ensuring that emergency workers were knowledgeable regarding emergency worker exposure control, and that they were provided all necessary dosimetry and instructions. In preparation for dispatching emergency workers to staff traffic and access control points they considered: the flow of traffic, alternate routes, areas to be avoided, potential changes in the release, rotating personnel to minimize exposures, meteorological conditions, and what to do in the event of equipment failure.

At 0933, the RO provided a thouough briefing to the County Sheriff and the Hermann Chief of Police who were being prepared for dispatch to staff Traffic Access and Control Points (TACPs). The RO stated that the Director of the Missouri Department of Health and Senior Services (DHSS) makes the decision to authorize potassium iodide (KI) for emergency workers and has the authority to authorize exposure levels to emergency workers in excess of pre-authorized administrative levels, up to 25 R for life-saving missions for those who volunteer for such assignments. If necessary the Emergency Management Director (EMD) consults with the County Commissioners and the State Emergency Management Agency (SEMA) to request authorization to exceed the administrative limit.

The RO explained that the administrative exposure limit specified by the DHSS for emergency workers is 1 REM, with 5 REM annual limit. Emergency workers were advised how and when to wear and read dosimeters and how to record their readings. KI was distributed to emergency workers along with dosimetry prior to their being dispatched. When KI was issued to emergency workers they were required to complete a KI Record Card on which KI ingestion is recorded.

The correction factor for the conversion of Direct Reading Dosimeter readings to Total Effective Dose Equivalent was not addressed during this exercise at the Gasconade County EOC.

Criterion 2.b.2: This criterion was adequately demonstrated in accordance with the plans, procedures, and extent of play agreement.

Gasconade County Commissioners with input from the Emergency Management Director make protective action decisions (PAD) for the County. Potassium iodide (KI) is not issued to the general population in Missouri. PAD is coordinated with the State Emergency Management Agency and surrounding Risk Counties before being implemented. However if a PAD only affects Gasconade County the Commissioners could act on the PAD without Coordination. They would then notify the State and surrounding Counties of their actions.

During this exercise the following PADs were implemented: The first PAD was receipt of the Site Area Emergency Classification Level (ECL) and to place animals on stored feed and water. This PAD was received at 0847 and was immediately acted upon. The second PAD was to evacuate sub-areas C1, C3, C4, and C11. This PAD did not directly affect the County. This PAD was received at the County at 1017. The third PAD to Embargo Agriculture crops was received in the County at 1102. The fourth PAD was for a wind shift which added an additional sub-area G1 and extended the evacuated area out to 10 miles which affected the County. This PAD was received at 1240.

The fourth PAD would have affected the County had they not have already evacuated their sub-area G1 at 0905 following a train wreck (simulated) in Morrison. The Commissioners made a decision to evacuate G1 at 0905 and they sounded their siren at 0912 and evacuated their 173 people and the four Special Needs population.

Criterion 2.c.1: This criterion was adequately demonstrated in accordance with the plans, procedures, and extent of play agreement.

Gasconade County has in place procedures to protect their special population in case they are needed to be evacuated. The County Commissioners with input from the Emergency Management Director (EMD) make protective action decisions (PAD) for special populations.

There are no special needs facilities in Gasconade County's portion of the 10-mile Emergency Planning Zone (EPZ). There are only four (4) special needs people living within the EPZ of Gasconade County. They are considered as part of the general population. The EMD advised they have sufficient resources to evacuate the four special needs population. An additional PAD to shelter the special needs population could be issued by the decision makers.

Criterion 3.a.1: This criterion was adequately demonstrated in accordance with the plans, procedures, and extent of play agreement.

The County Commissioners after consulting with the Emergency Management Director (EMD), and the County Health Officer (CHO) makes the decision to dispatch emergency workers (EW) to the field.

The CHO issued a dosimeter kit to each EW prior to their leaving the Emergency Operations Center. She briefs them on zeroing the direct –reading dosimeters (DRD), to check and read their DRDs every 30 minutes and record their readings on their dosimeter record form. She advised them of their radiation exposure limits (5R) and administrative reporting limits (1R). They are to notify their supervisor when they get near the 1R reading. She also advised them where to wear their DRD and their Optically Stimulated Luminescent (OSL) permanent record dosimeters, and when and where to return their dosimetry at the conclusion of their mission.

The CHO would determine whether to replace an EW who has been exposed. She would first consult the Commissioners and EMD and possibly the State Health Officer. No life saving mission was assigned during this exercise.

Two EW were interviewed. They were aware of their exposure limits, how often to read their DRDs, and where to turn them in at end of the mission. They were very knowledgeable concerning their EW exposure control.

Criterion 3.b.1: This criterion was adequately demonstrated in accordance with the plans, procedures, and extent of play agreement.

The State of Missouri does not provide potassium iodide (KI) to the general public. Emergency Workers (EW) within Gasconade County are all issued a dosimeter kit which contains a packet of 14 KI tablets (expiration date 2013). They are also given a briefing by the County Health Officer (CHO) prior to their leaving the Emergency

Operations Center. They were advised not to take KI unless told to by their supervisor and when they take the KI to record the day and time they ingested the KI.

The CHO also advised them it was voluntary and to advise her if they did not wish to take KI. No EW declined to take KI if so advised. She also advised them the reason for taking KI, dosages and time period within which KI should be taken, and possible side effects.

At 1102 the County received word to take KI. The CHO was not satisfied with the message (not clear) and called her counterpart in the State Emergency Operations Center (EOC). After being satisfied with the decision she recommended to the County Commissioners at 1110 to advise the County EW to take KI. The EOC staff then immediately notified their EW in the field to take and record taking KI.

Criterion 3.c.1: This criterion was adequately demonstrated in accordance with the plans, procedures, and extent of play agreement.

Gasconade County officials in the Emergency Operations Center (EOC) demonstrated the capability to implement protective actions for special populations (other than schools) within the areas subject to protective actions. Special populations in the Gasconade County portion of the 10-mile Emergency Planning Zone (EPZ) include only four individuals, who are homebound with special needs. A current confidential listing of these special needs individuals is maintained in the Gasconade County EOC. This list contains information on the location of the individual and their special needs. During the exercise the Transportation Coordinator simulated contacting each of these individuals by telephone to apprise them of the situation and to prepare them for evacuation. Transportation resources were planned based on the nature of the special needs. An assessment was made of host facilities to determine locations where special needs evacuees would be transported.

At 0933 during an evacuation resulting from a train derailment, transportation was provided by the Hermann Express vehicle to evacuate two of these individuals to the hospital. The other two evacuated with their families.

Although several agency officials in the EOC were involved in the implementation of protective actions for the special populations, it was observed that the close coordination and interaction required to accomplish these protective actions was performed in an efficient manner.

There are no hospitals, special care facilities or correctional institutions in the Gasconade County portion of the emergency planning zone (EPZ).

Criterion 3.c.2: There are no schools in Gasconade County in the emergency planning zone (EPZ).

Gasconade County R-1 Public Schools were evaluated by interview on July 25/26, 2007.

Public Schools located in Gasconade County, Hermann, Missouri, include an elementary, middle and high school and one private school, St. George. Since the Hermann Middle School serves as a reception center, if any students in these schools live in the EPZ, they will be held in the reception center until picked up by their guardian. No student who currently attends these schools resides in the EPZ.

The buses that serve these public schools are scheduled to be utilized during general evacuations in the County.

Criterion 3.d.1: This criterion was adequately demonstrated in accordance with the plans, procedures, and extent of play agreement.

At the Gasconade County Emergency Operations Center (EOC) the County Sheriff and the Hermann Chief of Police utilized the County Plan and Procedures and the Emergency Planning Zone (EPZ) Traffic and Access Control Map to coordinate the implementation of the traffic and access control point (TACP). Due to their remote location from the Callaway plant and the limited number of bridges across the Missouri River, they are only responsible for one TACP, which is located at the intersection of highway "N" and highway 100. This same intersection is utilized as an On Scene Command Post and as a staging area for transportation resources during emergencies. Mutual aid agreements are in effect with adjacent Counties whereby additional TACP personnel and equipment are made available to Gasconade County if needed. The Sheriff coordinated with law enforcement agencies in adjacent counties to determine whether additional resources would be required.

At 0905, an exercise inject simulated a train derailment in Morrison, involving a coal car fire and a tanker of anhydrous ammonia, requiring the evacuation of the city of Morrison to the Care and Reception center in Hermann, and the evacuation of the area between

Morrison and Portland. At this time they surveyed available resources and considered the following factors in determining when and where to establish the TACP: wind direction, anticipated traffic, location of the reception centers, road conditions, and status of the incident. The Sheriff coordinated the timely establishment and staffing of the TACP in accordance with the County Plan and Procedures. Officers staffing the TACP are in radio contact with their dispatch center and are kept abreast of changes in the Emergency Classification Level (ECL) and other pertinent aspects of the emergency.

Prior to being dispatched, the officers were issued proper dosimetry and were given a thorough radiological briefing that included: where and how to wear and read dosimeters; administrative exposure and turn back limits; the purpose of, and who authorizes the ingestion of potassium iodide (KI); how to record and report readings; and to whom dosimetry will be returned upon completion of their mission. They were knowledgeable regarding the location of reception centers and emergency worker decontamination centers and the equipment available for the establishment of traffic access and control points.

At 0950, the State Emergency Management Agency (SEMA) closed the area to rail traffic. The Gasconade County Commissioners requested that the Federal Aviation Administration (FAA) restrict air traffic over the area and the County closed Missouri River traffic between mile marker 108 and 111, due to the train derailment.

Criterion 3.d.2: This criterion was adequately demonstrated in accordance with the plans, procedures, and extent of play agreement.

Based on interviews with County officials at the EOC, adequate supplies of equipment are readily available to support traffic and access control activities. Officers will initially utilize their patrol vehicles for blocking traffic. Law enforcement agencies routinely carry cones and flares in their vehicles. In addition, a variety of barricades are available from the Missouri Department of Transportation (MDOT) the County Highway Department and City of Hermann Streets Department. These include barrels and lighted barricades. Computerized information signs are also available from MDOT if needed.

In the event of a traffic impediment to evacuation, law enforcement officers radio the County 911 Center in Owensville for assistance. The 911 Center maintains a current list of public and private companies and agencies that are available and prepared to provide the specific types of resources and equipment needed to remove the

impediment.

Criterion 5.a.1: This criterion was adequately demonstrated in accordance with the plans, procedures, and extent of play agreement.

Gasconade County alert their small portion of the 10-mile Emergency Planning Zone (EPZ) by one fixed siren, tone alert radios in each home, route alerting, and a reverse 911 telephone system. There is no deaf population in the County EPZ, however a TDD is located at the 911 center if needed.

Normally Callaway County sound the sirens for the entire 10-mile EPZ, however Gasconade County can sound their one siren if needed. The decision to activate the sirens is made with a conference call of all the Risk Counties and the State Emergency Management Agency (SEMA). If Gasconade County siren fails they would do back up route alerting. Emergency Alert System (EAS) messages are prepared at the Joint Information Center (JIC), colocated with SEMA. Gasconade staff furnishes information to the JIC to be included in the EAS messages if needed.

Notification of response actions to Gasconade County residents is by the EAS system, tone alert radios, back up route alerting, and reverse 911 system.

The initial protective action decision (alert and notification sequence) was receipt of a notification to put farm animals on stored feed and water and notification that a site area emergency had been declared. This notification was received at 0847.

Criterion 5.a.3: This criterion was adequately demonstrated in accordance with the plans, procedures, and extent of play agreement.

Gasconade County does not have any approved exception areas in their small portion of the County that is located within the 10-mile emergency planning zone.

Back up route alerting is done by the County Sheriff's Department staff should a siren fail. The County has only one route to notify should their one siren fail. The Sheriff stated it would only take approximately 15 to 20 minutes to run the entire route. They have developed a route alerting map that is located in all of the Sheriff's automobiles. They also have developed Messages to be read by the Deputies using loud-speaker. This route was run (simulated) following a train wreck in Morrison that required the County to evacuate the area.

There are only 173 residents living in sub-area G-1 (Gasconade County) that are to be notified.

Criterion 5.b.1: This criterion was adequately demonstrated in accordance with the plans, procedures, and extent of play agreement.

Media briefings are held at the Joint Information Center (JIC), colocated with the State Emergency Management Agency (SEMA). SEMA staff acted as spokesperson for Gasconade County at all media briefings. Gasconade County is capable of holding media briefings if required, however they recommend to the media to go to the JIC to receive briefings. Emergency Alert System (EAS) messages are prepared at the JIC and if necessary Gasconade County would furnish information to the JIC for inclusion. Pre-scripted EAS messages are included in the County plans. Rumor control (public inquiry hotline) is done at the JIC. Gasconade County furnished the rumor control number to their population through press releases from the JIC.

Gasconade County Public Information Officer was in contact with the JIC staff to furnish information to be included in press releases. The County did not issue any local press releases.

Gasconade County Staff monitored media broadcast over the EAS radio throughout the exercise for accuracy and content.

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

a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2, 2.c.1, 3.a.1, 3.b.1, 3.c.1, 3.c.2, 3.d.1, 3.d.2, 5.a.1, 5.a.3, 5.b.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. NOT DEMONSTRATED: None
e. PRIOR ISSUES - RESOLVED: None
f. PRIOR ISSUES - UNRESOLVED: None

## 4.2.2.8. Gasconade R-1 Public Schools

Criterion 1.e.1: This criterion was adequately demonstrated pursuant to existing plans

and procedures and in accordance with the negotiated extent of play.

The Gasconade R-1 School District is a public school district providing educational services to a predominantly rural population. A portion of the district lies within the 10-mile Emergency Planning Zone (EPZ) for the Callaway Nuclear Power Plant. There is one elementary school (K-3) located in Hermann. The High School (9-12) and Middle School (4-8) are located in Hermann.

The school district also supplies transportation services to St. George Catholic School (K-8) which is also located in Hermann.

None of the schools are within the EPZ, however, all the schools may contain students that live in the EPZ. Approximately 12% of the total number of students transported live in the EPZ.

The School district employs a staff of approximately 146 persons and has an average total enrollment of about 1100 students.

St. George School has an enrollment of approximately 171 students and about 20 staff members.

Virtually all of the students require transportation to school. The school district owns and operates its own fleet of 13 buses, 9 of which are used each day in routine transportation of students. The district also contracts for an additional 8 buses and drivers from the Swartz Bus Service. The school district employs its own drivers for the buses it operates. Of the 17 normal daily bus routes, 4 enter the EPZ to pick up or drop off students.

All buses are equipped with radios permitting communication with the schools and with the county emergency operations center.

Copies of all plans and procedures are readily available to administrators and staff.

The use of dosimetry and the ingestion of Potassium Iodide are not anticipated as the preferred method of protection is to remove students from the EPZ or preclude their return to same. If KI was needed, the county emergency management agency could arrange supply and instruction.

Criterion 3.c.2: This criterion was successfulyl demonstrated pursuant to existing plans and procedures and in accordance with the negotiated extent of play agreement.

Approximately twelve percent of the school district's students reside within the EPZ. Should an emergency occur at Callaway Nuclear Power Plant, all students en route to school would be delivered to school and held for pickup by parents/guardians. If school is in-session, students residing in the EPZ would be held at school for pickup. If buses were en route to the EPZ at the time of declaration, they would be recalled to the middle school and held for pickup. It is, therefore, the plan of the district to minimize student/parent potential for contamination/exposure by placing/keeping students outside the affected EPZ sub-areas.

The District Superintendent or his designees may make the decision to undertake protective action. Copies of the plans and procedures are readily available to all administrators and staff. All buses are equipped with two-way radios.

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

a. MET: 1.e.1, 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. NOT DEMONSTRATED: None
e. PRIOR ISSUES - RESOLVED: None
f. PRIOR ISSUES - UNRESOLVED: None

# 4.2.2.9. Montgomery County Emergency Operations Center

Criterion 1.a.1: Montgomery County used effective procedures to alert, notify, and mobilize emergency personnel and activate facilities in a timely manner. At 0718 the Montgomery County Communications Center Dispatcher received Notification of Unusual Event classification over the Callaway Plant Radio and Sentry System. Verification by dispatch was not required since notification was made by the Sentry System and Plant Radio, both dedicated systems. Sentry System notification was printed off in hard copy. The Dispatcher notified the County Commissioner and the Emergency Management Director (EMD). The Dispatcher notified Missouri State Emergency Management agency of the notification and of the actions taken.

At 0734 the Callaway Plant used the Sentry System to notify Montgomery County EMD of the Alert declaration. The notification was received in the Emergency Operations Center (EOC) and the Communications Center. The EMD initiated mobilization calls to staff the EOC. Calls were placed to the following:

- County Commissioner
- Sheriff's Department
- Road and Bridge Department
- Health Department
- Public Information Officer (Volunteer)
- Transportation Officer (Montgomery City Clerk)
- E-Team (Volunteer)
- Fire Department
- Ambulance District
- Montgomery City Police Department

There were sufficient personnel listed on the EOC staffing directory to staff additional shifts.

EOC security was established at 0748. EOC staff was augmented by a Technical Specialist from the Callaway Plant. The EOC was declared operational at 0753. An initial briefing of EOC staff was conducted at 0756. Actions to place additional resources on standby were initiated by:

- Sheriff's Department
- Road and Bridge Department
- Transportation Officer
- E-Team Officer
- Fire Department
- Ambulance District

All activities were based on Montgomery County's plans and procedures and completed as they would have been in an actual emergency.

Criterion 1.c.1: This criteria was adequately demonstrated in accordance with the plans, procedures and the extent of play letter. There were no issues identified.

A Montgomery County Commissioner was effectively in charge of direction and control for the county during the exercise conducted on August 8, 2007. The commissioner makes the decisions based on recommendations provided by the state and the utility. He is assisted by the Emergency Management Director and the EOC staff. At 1103, the county received a recommendation from the State Department of Health and Senior Services which indicated the county should consider the evacuation of special populations out to ten miles from the Callaway Nuclear Power Plant. Following information that the reception center in Hermann had been activated and an increase in the amount of radiation being released from the plant, the commissioner made the decision at 1112to evacuate the seven individuals requiring special needs. These individuals were evacuated to the Herman Reception Center. Following a recommendation from Health and Human Services at 1232 to evacuation sub areas M1 and M2, the commissioner made the decision at 1237 to direct this evacuation and directed the state to issue the appropriate EAS message.

The emergency management director directed the activation of the EOC following receipt of an Alert notification at 0734 and directions from the county commissioner. The EOC was declared operational at 0753. The EMD provided several update briefing providing the EOC staff with information and received status of the actions that the staff were accomplishing.

The staff utilized plans and procedures during the exercise and maintained message logs.

Criterion 1.d.1: At least two communication systems were available and operable. Communication links were established and maintained with appropriate locations. Communications capabilities were managed in support of emergency operations.

The Montgomery County Communications Center was located down the hallway from the Emergency Operations Center (EOC). The Communications Center manages the 911 Dispatch Systems for Montgomery County. There were two stations with four computer screens available. The screens were for the 911 System, the Radio system, the Mapping system, and the Missouri Unified Law Enforcement System (MULES). There is a 911 computer available. A Zetron Radio System had the following frequencies available:

- Law Enforcement 158.730
- Fire 155.895

- Ambulance 155.235
- Law Mutual Aid 155.475
- Sheriff Department 155.730
- Point to Point 155.370

Paging capability was also available. Montgomery County had two repeaters located at Jonesburg and Big Springs. There were fax and teletype capability available. There was a telephone system with two administrative lines and three 911 lines.

The primary means of communications between the Callaway Plant and the Montgomery County EOC/Communications Center is the Sentry System. The system provides a computer display and printout capability of the plant information. The backup communications was the radio communications with the Callaway plant. There were redundant systems in the EOC and communications Center.

Communications Center had the capability to initiate public warning using the two sirens located in Montgomery County. These sirens were activated by Callaway County during the exercise. The Communications Center and the EOC had the capability to activate public notification using the Community Alert Network.

No communications failures occurred during the exercise. All activities associated with the management of communications capabilities were demonstrated based on the Montgomery County plans and procedures and completed as they would have been in an actual emergency.

Criterion 1.e.1: Montgomery County had sufficient equipment and supplies available to support emergency operations. The Montgomery County Emergency Operations Center (EOC) is located in the Montgomery County Courthouse. The Montgomery County communications Center is located a short walk down the hallway from the EOC. There were sufficient telephones, computers, computer printers and fax machines available for the operation. A copy machine was available and used to make copies. A television was available for media monitoring.

Within the EOC, a number of displays were available for participants to use. The displays available included:
- Sentry Monitor Display
- Board where Sentry Data was displayed
- 10-Mile Emergency Planning Zone Map with subareas

• Emergency Response Status Board

An adjacent office to the EOC also had the 911 Mapping and Addressing System available. This allowed identification of homes in the M-1 and M-2 subareas. It allowed for easy location of special needs residents.

At 0914, the Health Officer briefed the Fire District Officer, Sheriff, Road and Bridge Officer, and the Ambulance District Officer on the dosimetry equipment and its use. Exposure limits including administrative limits and maximum exposure were briefed. The briefing also included how often to read dosimeter (every 30 minutes): what to do if a dosimeter was dropped or damaged; need to obtain permission from the Health Officer to exceed limits for lifesaving; when to rezero dosimeters (75% of scale) and administration of KI. Fifty-five Optically Stimulated Luminescence (OSL's) Dosimeters and twenty CDV-725 Dosimeters (0-5 R) were available. There were also twenty CDV-742 (0-200R) Dosimeters. Dosimeters were calibrated in March 07. Ninety packets (14 tablets, 130mg) of KI were available. The KI had an expiration date of 08/2013. Two survey instruments were available, a Model CDV-715, and CDV 700, Model 6B, (calibrated March 26, 2007).

Montgomery County had only five pre-designated traffic/access control points. By interview with the Road and Bridge Officer it was determined that five vehicles and fifty barricades available for traffic control.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 2.a.1: Montgomery County used a decision-making process, considered relevant factors and coordinated appropriately, to ensure that an exposure control system, including the use of KI, was in place for emergency workers. This system included provisions to authorize radiation exposure in excess of administrative limits or protective action guides.

At 0914, the Health Officer briefed the Fire District Officer, Sheriff, Road and Bridge Officer, and the Ambulance District Officer on the dosimetry equipment and its use. Exposure limits including administrative limits and maximum exposure were briefed. The briefing also included how often to read dosimeter (every 30 minutes): what to do if a dosimeter was dropped or damaged; need to obtain permission from the Health Officer to exceed limits for lifesaving; when to rezero dosimeters (75% of scale) and

administration of potassium iodide (KI). Personnel were instructed not to take KI until instructed by the Health Officer to do so. Fifty-five Optically Stimulated Luminescence (OSL's) Dosimeters and twenty CDV-725 Dosimeters (0-5 R) were available. There were also twenty CDV-742 (0-200R) Dosimeters. Dosimeters were calibrated in March 07. Ninety packets (14 tablets, 130mg) of KI were available. The KI had an expiration date of 08/2013. Two survey instruments were available, a Model CDV-715, and CDV 700, Model 6B, (calibrated March 26, 2007).

At 1109 the County Commissioner concurred with the Health Departments recommendation to administer KI to emergency workers. At 1116, the Fire Officer contacted the Big Springs and Rhineland Fire Departments and instructed workers to take KI. The Ambulance District Officer issued KI instructions at 1120. When the decision was made to establish traffic and access control points, the Sheriff issued KI instructions to officers at 1235; and the Road and Bridge Officer to workers at 1237.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 2.b.2: This criterion was adequately demonstrated in accordance with plans, procedures, and the extent of play letter. No issues were identified.

The County Commissioner makes the protective action decisions (PADs) for Montgomery County. During this exercise, he utilized recommendations from the utility, state Department of Health, and Human Services (DHHS)the Emergency Management Director (EMD), and the EOC staff.

Upon notification that DHHS had recommended KI for emergency workers, the commissioners immediately instructed the EOC staff to inform emergency workers under their control that KI had been recommended. In Missouri, KI is not provided to the general public.

At 1103, the county received a recommendation from the State Department of Health and Senior Services which indicated the county should consider the evacuation of special populations out to ten miles from the Callaway Nuclear Power Plant. Following information that the reception center in Hermann had been activated and an increase in the amount of radiation being released from the plant, the commissioner made the decision at 1112 to evacuate the seven individuals requiring special needs. These individuals were evacuated to the Herman Reception Center. Following a

recommendation from Health and Human Services at 1232 to evacuation sub areas M1 and M2, the commissioner made the decision at 1237 to direct this evacuation and had the county PIO to issue the appropriate EAS message to the state.

Throughout the exercise the commissioner provided timely and acurate decisions and appropriate coordination.

Criterion 2.c.1: This criterion was adequately demonstrated in accordance with plans, procedures, and the extent of play letter. There were no issues identified.

The County Commissioner is responsible for making decisions concerning special populations.

Although there are no schools in the Montgomery County portion of the EPZ, there are children attending the county schools that live in the EPZ. At 0840, the commissioner instructed the EMD to notify county schools to keep any children living in the EPZ at the school pending further developments at the plant.

At 1103, the county received a recommendation from the State Department of Health and Senior Services which indicated the county should consider the evacuation of special populations out to ten miles from the Callaway Nuclear Power Plant. Following information that the reception center in Hermann had been activated and an increase in the amount of radiation being released from the plant, the commissioner made the decision at 1112 to evacuate the seven individuals requiring special needs. These individuals were evacuated to the Herman Reception Center.

The decisions made by the commissioner concern special populations within the county were timely and accurate.

Criterion 3.a.1: This Criterion was adequately demonstrated in accordance with the plans, procedures, and the extent of play letter. There were no issues identified.

In Montgomery County, the commissioner makes the decision to dispatch emergency workers and they are briefed by the Health Services Officer.

The Health Services Officer provided an adequate briefing to simulated emergency workers, which included zeroing direct-reading dosimeters, to read and record any change in the dosimeter's reading every 30 minutes, what the exposure limits and turn-

back values are, proper use of permanent record dosimeters and where to turn them in at the end of each shift.

The administrative dose limit of 1R was explained and all of emergency workers receiving the briefing were reminded that the packet they were receiving contained instructions that contained information should they need it.

Criterion 3.b.1: This criterion was adequately demonstrated in accordance with plans, procedures, and the extent of play agreement. No issues were identified.

In Missouri, KI is not recommended for the general public. The state relies on evacuation to protect the general public.

The Missouri Department of Health and Human Services (DHHS) makes the recommendation for emergency workers to ingest KI. This is based on plant conditions and amount of radioactive iodine.

During this exercise, DHHS recommended the ingestion of KI for emergency workers in the EPZ at 1102.. Upon notification that DHHS had recommended KI for emergency workers, the commissioners immediately instructed the EOC staff to inform emergency workers under their control that KI had been recommended. The was accomplished at 1109.

Emergency workers interviewed were knowledgeable of procedures for the use and recording of ingestion of KI.

Criterion 3.c.1: Protective action decisions were implemented for special populations other than schools within Montgomery County subareas M-1 and M-2. There were no special facilities located within the affected subareas. However, Montgomery County Emergency Management maintains a list of special needs individuals. There were three individuals listed for subarea M-1, six for subarea M-2, and three outside the subareas. By 0848, the Transportation Officer had reviewed the list of special needs individuals and contacted the Schwartz Bus Company in Jonesburg, MO. There were three regular buses, one handicapped bus, and four drivers available.

At 1112, the County Commissioner issued an order to evacuate special needs personnel. At 1116, the Transportation Officer deployed buses in conjunction with ambulances and fire resources to evacuate special needs personnel. Ambulances were

dispatched to assist with evacuations. In all, six persons from Rhineland and 1 person from Montgomery County required assistance.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.c.2: Protective action decisions were implemented for special populations other than schools within Montgomery County subareas M-1 and M-2. There were no schools located within the affected subareas. The Transportation Officer contacted the Schwartz Bus Company in Jonesburg, MO. There were three regular buses, one handicapped bus, and four drivers available.

At 0846, the Transportation Officer contacted the Lana Bokermann (unlicensed) Day Care, located in M-2, to verify that there were sufficient transportation resources to evacuate the day care should evacuation be recommended. The Day Care required no assistance.

By 0848, the Emergency Management Director had instructed the District Superintendent of Schools not to release any school children living in Subareas M-1 or M-2.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.d.1: Appropriate traffic and access control was established. Accurate instructions were provided to traffic and access control personnel. Interviews of the Sheriff, the Road and Bridge Officer, and the Fire Officer were conducted.

There were five pre-designated traffic and access control points identified on the Emergency Planning Zone map. The points were as follows:

* C-13 Scanlon Road and Highway NN
* C-14 Graveyard Hill Road and Highway NN
* D-12 Highway K and Highway HH
* E-14 Highway P and County Road
* E-15 Highway P and Highway 94

Following notification of the Alert at 0734, actions to place additional resources on

standby were initiated by:

- Sheriff's Department
- Road and Bridge Department
- Fire Department

At 0914, the Health Officer briefed the Fire District Officer; Road and Bridge Officer; and Sheriff on the dosimetry equipment and its use. Exposure limits including administrative limits and maximum exposure were briefed. The briefing also included how often to read dosimeter (every 30 minutes): what to do if a dosimeter was dropped or damaged; need to obtain permission from the Health Officer to exceed limits for lifesaving; when to rezero dosimeters (75% of scale) and administration of KI.

Coordination between the Sheriff and the Road and Bridge Officer was apparent in the establishment of traffic and access control. The Sheriff issued KI instructions to officers at 1235; and the Road and Bridge Officer to workers at 1237.

The decision was made evacuate Subareas M-1 and M-2 and to establish traffic control at 1237. The Sheriff dispatched a deputy to each of the five control points. By interview with the Road and Bridge Officer it was determined that five vehicles and fifty barricades were available for traffic control. The Road and Bridge Officer dispatched a vehicle with two workers and barricades to each of the five control points.

All activities were based on Montgomery County plans and procedures and were completed, as they would have been in an actual emergency, unless specified above or indicated in the extent of play agreement.

Criterion 3.d.2: No impediments were injected as part of the exercise for Montgomery County. Interviews of the Sheriff, the Road and Bridge Officer, and the Fire Officer were conducted.

The Sheriff and Fire Officer understood the procedures involved in removing impediments. However, the Road and Bridge Officer indicated that while the department had the necessary equipment, it was not expected that they would have a role in removing impediments. The understanding was that impediment removal would be handled by law enforcement and fire departments.

All activities were based on Montgomery County plans and procedures and were

completed, as they would have been in an actual emergency, unless specified above or indicated in the extent of play agreement.

Note: There is a training concern with the Road and Bridge Officer. Tab 2, Annex I, Section I.A.1 specifically states that County Road and Bridge will perform impediment removal. It should be noted that the Road and Bridge Officer did not expect employees to enter the affected zones and intended to issue only one dosimeter per vehicle for that reason.

Criterion 5.a.1: This criterion was adequately demonstrated in accordance with plans, procedures, and the extent of play letter. No issues were identified.

Montgomery County has the capability to activiate sirens within its EPZ; however, during the exercise all siren activation was accomplished by Callaway County. The EAS station activates the tone-alert radios during broadcast of the EAS message. The county provides the State EOC with an approved message and the state in turn provides this message to the EAS station.

Following notification of the Site Area Emergency at 0838, the county commissioner approved the release of Message # 2, Site Emergency Notification and Message # 4, Rumor Control Notification. This approval was in coordination with the State EOC and the county EOCs of Callaway, Gasconade, and Osage. This approval method is in accordance with the county and state plans and procedures

Criterion 5.a.3: This criterion was adequately demonstrated in accordance with the plans, procedures, and the extent of play letter. There were no issues identified.

There are no approved exception areas in the County.

There were no failures of the primary alert and notification system that would require demonstration of the back up notification. If there had been a failure, the county would have demonstrated in accordance with the plan and procedures.

Criterion 5.b.1: This criterion was adequately demonstrated in accordance with the plans, procedures, and the extent of play letter. There were no issues identified.

Upon notification from the State Department of Health and Human Services at 1230 of the recommendation to evacuate out to 10 miles in sectors CDEFG, the county

commissioner make the decision to accept the recommendation. The county PIO prepared Message # 8-M indicating that Montgomery County residents living in sub-area M-1 and M-2 should evacuate to either the Herman Reception Center or the Montgomery County Reception Center. This EAS message was provided to the State EOC, at 1237, in coordination with the counties of Callaway, Gasconade, and Osage and the State EOC. The State EOC would compile the messages from all counties and forward to the EAS Station for broadcast. Callaway County would activate the sirens as directed by the State EOC.

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

a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2, 2.c.1, 3.a.1, 3.b.1, 3.c.1, 3.c.2, 3.d.1, 3.d.2, 5.a.1, 5.a.3, 5.b.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. NOT DEMONSTRATED: None
e. PRIOR ISSUES - RESOLVED: None
f. PRIOR ISSUES - UNRESOLVED: None

## 4.2.2.10. Osage County Emergency Operations Center

Criterion 1.a.1: This criterion was adequately demonstrated in accordance with plans, procedures, and extent of play agreements.

The Osage County Emergency Operations Center (EOC) was located on E. Main St., Linn, MO. This building also houses the Osage County 911 Center, which is staffed 24 hours a day and serves as the Osage County primary answering point for an emergency at the Callaway Nuclear Power Plant. The 911 Center received the initial notification of an Unusual Event (UE) at 0718. This was received over the "Sentry" dedicated computer system. The 911 Center confirmed this notification with the utility by commercial telephone and then made notifications to EOC personnel as required by plans and procedures. At 0734 the 911 Center received the Alert notification and again confirmed this with the facility by telephone. At 0737 the dispatcher notified the Emergency Management Agency Director of the Alert status by telephone and was told that he was at the EOC and the EOC would handle subsequent notifications by "Sentry" and would make all further notifications of EOC staff.

The EOC was activated, and response staff notified, at the time of the Alert. The EOC was declared operational by the EMA Director at 0836 when all staff had arrived. A roster of EOC staff indicating availability of sufficient numbers for 24 hour staffing of all positions was observed.

Notifications in the EOC of the Site Area Emergency was received at 0838 and General Emergency at 1000. These were received by the "Sentry" system in the EOC with no problems.

Criterion 1.c.1: This criterion was adequately demonstrated in accordance with the extent of play and plans and procedures and no issues were identified.

On August 8, 2007, Osage County Emergency Operations Center (EOC) participated in Full scale Plume Exercise with the Callaway Nuclear Power Plant. Overall everyone did an excellent job of coordinating and communicating with each other and their couterparts in the field. At 0730, the Emergency Management Director (EMD) and the Deputy EMD immediately started setting up each work area in the Osage County EOC. At 0815, during the "ALERT" phase the EMD gave an initial briefing to arriving staff on the condition of Callaway Nuclear Power Plant. In accordance with the plans, once the Presiding Commissioner arrived at 1100, there was an announcement that all approvals would go through him first. When there was an update or change in the conditions at the plant or an Emergency Classification Level (ECL) change a briefing was held immediately. Thereafter, the Deputy Emergency Management Director did an Excellent job of conducting briefings and leading everyone into the next phases of the exercise.

At the end of each briefing it was stated that everyone should continue to review their plans and procedures and to continue to think ahead for any problems that may arise. Throughout the exercise, discussions were conducted by the Presiding Commissioner with various staff, on courses of action to be taken (evacuation of various zones). Decisions were made in coordination with the County Commissioner, Osage County EOC Staff and the State Emergency Operations Center staff.

Criterion 1.d.1: This criterion was adequately demonstrated in accordance with plans, procedures, and extent of play agreements.

The Osage County Emergency Operation Center (EOC) was equipped with multiple

communications systems. Primary for notifications from the Callaway Nuclear Power Plant was the "Sentry" dedicated computer system. This was backed up by the "Back up Emergency Radio System" (BERS) and by commercial telephones. All three systems where used extensively during the exercise and observed to be operational with no noted failures.

Criterion 1.e.1: This criterion was adequately demonstrated in accordance with plans, procedures, and extent of play agreements.

The Osage County Emergency Operations Center (EOC) has sufficient equipment, maps, displays, dosimetry, potassium iodide (KI), and other supplies to support emergency operations. The EOC was equipped with displays including: emergency status board, Emergency Planning Zone map (with sub areas and sectors), county maps, plant diagrams and schematics, weather information, dosimetry / KI information display, and used a computer projection of the most up-to-date "Sentry" information. The EOC is also equipped with computers, printers, copier, and miscellaneous office equipment and supplies to support operations.

Dosimetry and KI are stored at the EOC for issuance to emergency workers for access control if needed. This included 20 Dosimeter Corp Model 611, 0-5R direct reading dosimeters (DRD) and 20 CDV-742, 0-200R DRD. These were supported by two CDV-750A dosimeter chargers and 15 CDV-750 chargers. Further, there were 50 Landauer Optically Stimulated Luminescent Dosimeters (OSLD) and 50 packets (of 14 tablets each) IOSAT KI (expiration 8/2013).

Through the Road and Bridge representative at the EOC there were available barricades and barriers for use in traffic and access control. This could be supplemented at the time of an emergency by requesting assistance from the State and surrounding jurisdictions.

Criterion 2.a.1: This criterion was adequately demonstrated in accordance with plans, procedures, and extent of play agreements.

The County Commission of Osage County, with the input from the Emergency Management Director and the Health Department representative, has the authority to authorize excess radiological exposure levels. This would be done only for life saving

missions and on a volunteer basis. The decision to recommend taking potassium iodide (KI) comes from the state health department. During the exercise no Osage County emergency workers were authorized to exceed the administrative dose limit of 1R.

During the exercise Osage County EOC staff discussed weather and plume information when making decisions on emergency workers assignments and duties. At 1135 the recommendation to take KI was received from the State Health Department. At that time the County Health Department representative, Emergency Management Director and the County Commissioners discussed this recommendation, concurred with it, and sent a message informing Osage emergency workers that KI was recommended.

Criterion 2.b.2: This criterion was adequately demonstrated in accordance with the extent of play and plans and procedures and no issues were identified.

In accordance with the plans, all protective action decisions were made by the County Commissioners. The County Commissioners coordinated with emergency operations center staff (Sheriff's Department, Health Department, Osage County Ambulance and Transportation Department and the Chamois Volunteer Fire Department) regarding evacuations. They took into consideration if there was a release at the plant, wind direction and recommendations from the staff at the emergency operations center. The only special population concern in the area of the evacuation was the R-1 Osage County, Chamois School Band Camp, which was contacted at 1005 in regards to evacuation. Coordination and excellent discussions went on with Osage County EOC and the State Emergency Operations Center on the decision on which zones to evacuate.

At 0838 a decision was made to put dairy animals on stored feed and water for the entire 10 mile EPZ. At 1005 the Presiding Commissioner directed evacuation of R-1 Osage County Chamois School Camp Band. At 1220, R-1 Osage County Chamois School Camp Band of 53 students was picked up and all other activities suspended. At 1242, Osage County Presiding Commissioner directed evacuation of Section O, Route N. All of the evacuation decisions were made by discussion with the Sheriff's Office representative, the State Emergency Operations Center, Transportation Officer, Health Officer and personnel and anyone with a role in the evacuation process.

They do not do dose projections at the County EOC, therefore, they coordinated with the Callaway and the State EOC to find out the conditions at the plant and made recommendations from that perspective.

Criterion 2.c.1: This criterion was adequately demonstrated in accordance with the extent of play and plans and procedures and no issues were identified.

Osage County EOC participated in Full Scale Plume Exercise for the Callaway Nuclear Power Plant. Overall everyone did an excellent job of planning ahead and contacting Rudroff and McKanque Bus companies and drivers to put those assets on standby if needed for evacuation. At 0846 they first contacted The Chamois Elementary and High School to alert them to the status of Callaway Nuclear Power Plant when it went to a Site Area Emergency (SAE). At 1005, after the plant declared a General Emergency, the decision was made to evacuate the Chamois School Camp Band and teachers that were in session and to relocate them to Jason Gymnasium in Jefferson City, Missouri.

There are no other known special population groups in the area.

Everyone in the EOC seemed to know everyone and there needs in the county they lived in.

Osage County Has Excellent Knowledge Of Their Community And Their Needs.

Criterion 3.a.1: This criterion was adequately demonstrated in accordance with the extent of play and plans and procedures and no issues were identified.

The State Radiological Officer (RO) advises the Osage County EOC and the Oasage County Health Officer on when to issue the Emergency Workers (EWs) the Dosimetry Kits when necessary.

The County Health Officer briefs all the EWs prior to their departing the Emergency Operations Center (EOC) on the established rules for: zeroing of their dosimeters, reading of their dosimeters every 30 minutes, and recording these readings, what their administrative exposure reporting limits are(500mR), their turn back values (1R), the proper use and wearing of their permanent record dosimetry and when and where to turn in their equipment in, at the conclusion of their mission.

All EOC staff and EWs that entered the EOC are issued a Dosimetry Kit that includes a thermoluminescent dosimeter (TLD) one low range reading CDV-725 one high range reading CDV-742 direct reading dosimeter to wear on the upper torso, on their outside

clothing including packet of KI (14 pills), an exposure recording card with instructions. They were to be turned back into the Health Officer at the end of their mission for processing.

When checking the dosemeters it was noticed that their was no current letter showing the last leak test,only one for December 13, 2004. The dosimetry did not match the plan. Their were no CDV's-725's, there were only some low dose dosimeters 611. There were 20 of each and a model-750 charger.

Criterion 3.b.1: This criterion was adequately demonstrated in accordance with the extent of play and plans and procedures and no issues were identified.

Osage Counties policy is not to issue potassium iodide (KI) to the general public. KI is issued to emergency workers (EW).

All Osage County EWs that are deployed from the emergency operations center (EOC) are issued a dosimetry kit which contains a 14 day supply of 130 mg Iosat KI tablets. The kit also has a sheet (KI issue record) so that EWs can record the ingestion of KI if so advised. Prior to the EWs departing the EOC, the Health Officer briefs them on the reason for taking KI, a Video is played (slightly outdated) the dosages and time period within which KI should be taken, and possible side effects.

Two EWs were interviewed concerning the use of KI. They were all very knowledgeable about the use of KI and how to record their ingesting of KI if so advised.

At 1135 Osage County received information from the State EOC that EWs were advised to ingest one KI tablet. The Health Officer immediately advised the EOC Department heads to notify their EWs in the field of this decision to ingest their KI tablet (simulate) and to record the ingestion on their KI issue record form.

Criterion 3.c.1: This criterion was adequately demonstrated in accordance with plans, procedures, and extent of play agreements.

During the exercise there was a general discussion of the protective actions that could be taken for special populations in the Osage County EPZ. The Emergency Management Director maintains the Special Needs List for Osage County. However, at

this time, there are none reported or known by the Emergency Management staff. Previously listed persons on the Osage County Special Needs List have been confirmed to have either moved out of the EPZ or are deceased.

There are no hospitals, nursing homes or correctional facilities currently in the EPZ.

Criterion 3.c.2: This criterion was adequately demonstrated in accordance with plans, procedures, and extent of play agreements. Schools were not in session for this exercise.

Osage County has one school facility inside the Emergency Planning Zone (EPZ) for the Callaway Nuclear Power Plant. This facility, the Osage County R-1 School has approximately 123 students from elementary to high school (approximately 200 with staff). At this time there are no private schools or day care centers in the EPZ.

At 0846, during the Site Area Emergency, the Emergency Management (EM) Director made telephone contact with the school facility. The Director indicated the school could take one of four actions depending on the emergency. They could not have school, dismiss early if in session, shelter in place, or evacuate. If an evacuation is chosen the students would be transported by bus to the Jason Gym and Soldier's Hall Reception and Care Center located in Jefferson City, MO. The transportation officer in the Emergency Operation Center (EOC) would arrange for bus transportation so that all students and staff could be evacuated in one trip. During this exercise the transportation officer made calls arranging for ten busses with a capacity of over 600 to be available.

Even though schools were not in session under the extent of play agreement the Osage County EM Director kept in telephone contact with Osage County R-1 School. At 1017, under the General Emergency, the Osage County EOC and school officials coordinated the simulated evacuation of 53 students actually at the school attending band camp. This was simulated with either release to parents at the school or evacuation in a bus that was on site.

Criterion 3.d.1: This criterion was adequately demonstrated in accordance with plans, procedures, and extent of play agreements.

There are six access control points (ACP) identified for the Osage County portion of the Callaway Emergency Planning Zone. These are under the jurisdiction of the Osage County Sheriff's Department representative at the Emergency Operations Center

(EOC). These ACP were simulated to be established in a timely manner at the General Emergency (GE) to ensure no unauthorized entry to the EPZ. The Sheriff's Department representative would have maintained radio contact with these points to relay any information or changes resulting from the emergency. Because of road closures reported from outside the county, two ad hoc access control points were simulated at the GE. These were at Routes OO and 244, and at Routes Z and 275.

As more actual access control points were established (per the extent of play) two Osage County Sheriff's Department personnel were interviewed at the EOC. Both exhibited an accurate knowledge of the six pre-determined access control points and were aware of their roles and responsibilities. They demonstrated knowledge of their dosimetry, the administrative and turn back limits, the issuance of and when they would take potassium iodide. The officers where aware of the location of reception centers for the public, the emergency worker center to report to at the end of their shift, and had adequate equipment in their assigned vehicles to maintain an ACP.

Criterion 3.d.2: This criterion was adequately demonstrated in accordance with plans, procedures, and extent of play agreements.

The Roads and Bridges representative at the Osage County Emergency Operations Center (EOC) would coordinate equipment needed to remove impediments from county roads during an emergency at the Callaway Nuclear Power Plant. He would coordinate with other jurisdictions (including the State) to assist clearing other roads. No impediments were identified during the exercise.

By interview with the Roads and Bridges representative it was determined that all county equipment would be available for impediment removal. This would include (but is not limited too) three dump trucks, two 2 ton trucks, and three pick up trucks. These could be staffed by the other 12 workers in the department. In addition, the Roads and Bridges representative had access and knowledge of other local resources and how to request additional assistance from the State EOC.

Criterion 5.a.1: This criterion was not demonstrated in the Osage County Emergency Operations Center (EOC).

Criterion 5.a.3: This criterion was not demonstrated in Osage County Emergency Operations Center (EOC).

Criterion 5.b.1: This criterion was adequately demonstrated in accordance with the plans, procedures and extent of play. No issues were identified.

A total of three (3) emergency alert system (EAS) messages were simulated to be transmitted to the public during the exercise.

All EAS messages from Osage County EOC are coordinated with the State EOC and then transmitted to the radio station by the State EOC representative in Jefferson City. Osage County's involvement in these supplemental messages was limited by the PIO and Director EMD and with the approval of the Presiding Commissioner construction of the message in conference with the State EOC staff.

The PIO used the pre-scripted message form located in the Osage County Contingency Plan when constructing the messages. This pre-scripted form contained all the elements required by Federal guidance. Information concerning school evacuation procedures, emergency planning sub-zone descriptions, reception center locations, evacuation routes, protective action decision (PAD) details and special instructions for evacuating or sheltering individuals was all contained in the form.

The PIO, EMD and the Presiding Commissioner correctly modified the form for each PAD issued. Forms were completed expeditiously. No EAS message insert was transmitted more than 15 minutes after PAD issuance.

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

a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2, 2.c.1, 3.a.1, 3.b.1, 3.c.1, 3.c.2, 3.d.1, 3.d.2, 5.a.1, 5.a.3, 5.b.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. NOT DEMONSTRATED: None
e. PRIOR ISSUES - RESOLVED: None
f. PRIOR ISSUES - UNRESOLVED: None

# 4.2.2.11. Osage R-1 School District

Criterion 1.e.1: Equipment, maps, displays, dosimetry, potassium iodide (KI), and other

supplies are sufficient to support emergency operations in accordance with the plans, procedures, and the Extent of Play Letter.

The Osage R-1 Schools are located in Chamois, Missouri. The district has an adequate supply of appropriate dosimetry, both Dosimeter Corporation Model 611 self reading (0-5R) and non-direct reading (TLDs). There is a minimum of 6 packets maintained, one for each of the 6 buses. Each packet contains one 0-5R DCM-611 dosimeter; one TLD; one package of 10 KI tablets and instructions for the use of the above.

The self-reading dosimeters had been inspected, inventoried and operationally checked by the State Radiological Officer in 2007. The KI packages have an expiration date of August 2013.

The State of Missouri does not stockpile KI for distribution to the general public.

Criterion 3.a.1: Appropriate dosimetry and procedures for emergency workers were followed. Periodically and at the end of each mission, dosimeters were read and recorded. The readings were recorded on the appropriate exposure record or chart. The management of radiological exposure to emergency workers was accomplished in accordance with the plans and procedures.

The Osage R-1 Schools are located in Chamois, Missouri. The School Superintendent, Principal, Transportation Officer, and a Bus Mechanic\Driver attended the interview.

The Callaway Schools maintain their dosimetry kits in the Superintendents office. One kit is available for each of their 6 buses. The transportation director is aware of the procedures for the issuance and usage of dosimetry. The director is also aware of how to conduct a briefing for radiological exposure control to Emergency Workers (bus drivers).

This briefing would include instructions and demonstration of zeroing dosimeters, recording of dosimetry, issuance and wear location, reading and recording dosimeters at 30-minute intervals, and an explanation of the exposure record card.

The briefing would also include the use of TLDs (permanent record), the 1R dose limit for emergency workers the 5R maximum, and the 25R dose limit for lifesaving.

Criterion 3.b.1: KI and appropriate instructions were available should a decision to recommend use of KI be made. Appropriate record keeping for the administration of KI to emergency workers and institutionalized individuals was satisfactorily demonstrated In accordance with the plans, procedures, & the Extent of Play Letter.

The Osage R-1 Schools is located in Chamois, Missouri. The School District staff are aware that the KI is stored in the Superintendents office with the appropriate instructions should a decision to recommend use of KI be made. They are also aware that the recommendation for Emergency Workers to take KI is made from the State of Missouri Health. Appropriate record keeping for the administration of KI to emergency workers was satisfactorily demonstrated.

The School District staff is also familiar with documenting who took or did not take KI. An adequate supply of KI is maintained for up to 6 Emergency Workers (bus drivers).

The KI packages have an expiration date of August 2013.

The State of Missouri does not stock pile KI for distribution to the general public.

Criterion 3.c.2: The capability of school officials to implement Protective Actions for school children and staff personnel was adequately demonstrated. All activities described in the demonstration criteria for this criterion were carried out in accordance with the plan and the extent of play agreement.

The Osage R-1 Schools are located in Chamois, Missouri. This district employs approximately 39 staff and has approximately 220 students.

An interview was conducted with Superintendent, transportation director, Principal, and a bus driver. The staff was knowledgeable that the facility would be informed of an incident at the Callaway Nuclear Power Plant by the Callaway County EOC.

Because the school district is located within the EPZ, the students and staff can either be sheltered in place or evacuated. The Superintendent was aware that if the Protective Action Decision were made to shelter, they would follow the procedures in the plan. They also understand that if the decision is to evacuate, residents will be transported to the Jason Gym and Soldier's Hall Reception and Care Center in

Jefferson City.

The district maintains their own vehicles and is prepared to evacuate in one trip to the Reception and Care Center. Before evacuation, the Transportation Director would issue dosimetry packets to each bus driver. The Transportation Director and bus driver were familiar with the operation and record keeping for dosimetry.

The district staff is very knowledgeable of their roles in protecting the health and safety of the students and staff under their care. They understood the district plan concerning an incident at the power plant. Communications capabilities are covered in Criterion 1d1.

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

a. MET: 1.e.1, 3.a.1, 3.b.1, 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. NOT DEMONSTRATED: None
e. PRIOR ISSUES - RESOLVED: None
f. PRIOR ISSUES - UNRESOLVED: None

## 4.2.3. Support Jurisdictions

### 4.2.3.1. Callaway Community Hospital

Criterion 1.e.1: This criterion was successfully demonstrated according to exstablished plans and procedures and the negotiated extent of play agreement.

The Hermann Reception and Care Center maintains an adequate supply of materials to support emergency operations. This supply includes monitoring/decontamination equipment and supplies, registration and record-keeping materials, communications equipment, protective apparel and all other items necessary for operation of the center over an extended period of time.

Criterion 3.a.1: The Callaway Community Hospital medical staff adequately demonstrated the ability to manage, monitor, and record radiological exposure to the team. The emergency response staff received direct reading dosimetry (0-5R, Stephen,

or Dosimeter 611 0-5R), and permanent record dosimetry (Landauer, Luxel Optically Stimulated Luminescence. All direct reading dosimeters were zeroed with a CD V-750 Dosimeter Charger prior to distribution. The radiological officer gave an initial briefing, filled out an exposure record sheet, and prompted participants to read dosimetry reading every 30 minutes. Participants demonstrated their knowledge of their exposure limits.

All activities demonstrated at Callaway Community Hospital were adequately demonstrated and according to the plans and procedures of the facility and the extent of play agreement for the exercise.

Criterion 6.d.1: The Callaway Community Hospital medical staff successfully demonstrated the ability to provide monitoring, decontamination, and medical services to contaminated injured individuals. This demonstration occurred as an out-of-sequence demonstration at the Callaway Community Hospital, Fulton, Missouri. At 0900 the Callaway Community Hospital Chief Nurse Director (CND) received simulated notification from the Emergency Operations Center of an event occurring at the Callaway Nuclear Power Plant. The CND initiated the emergency response and notification process according to the hospital's procedures. Emergency Response staff began to activate and set up the facility to receive potentially contaminated and injured individuals.

The radiation monitoring technicians were equipped with CD V-700 instruments equipped with pancake probes. Detection instruments were labeled with an operability check label with the X10 scale information, and operability range 3.5-4.5 mR/hr. Instruments were labeled with a calibration sticker. All calibration dates were current (3/16/2007). Operability checks were performed on all instruments according to the hospital's standard operating procedures. Background levels were determined according to the hospital's standard operating procedures and recorded on a sign that indicated background, contamination limits, and decontamination required. All response team members were equipped with the appropriate direct reading (0-5R Dosimetry 611 or 0-5 R Stephen) and permanent record (Landauer Luxel Optically Stimulated Luminescence) dosimeters.

This facility has adequate supplies to monitor and treat radiological contamination, as well as to prevent the contamination of the facility. They have a Radiological Supply cabinet equipped with survey forms, contaminated article tags, dress out supplies, signs, monitoring equipment, and personnel dosimetry. Medical staff demonstrated the

ability to control successfully the spread of contamination throughout the facility. Response staff donned tyvek coveralls, booties, and gloves. Medical staff was very careful to change gloves anytime the potential for contamination existed. The ER staff identified a trauma room to receive the individual and clearly marked access to the room by establishing a footpath marked by rope and cones. The ambulance bay and hospital floors were covered with floor covering. Clean boundaries and contaminated boundaries were clearly marked. The response team was very mindful of not crossing the boundary line. When the treatment of the individual was complete and the room was "torn down," staff members doffed their protective clothing, and were monitored before leaving the area.

Medical staff demonstrated the ability to successfully assess and treat the immediate injury of the individual before focusing on identifying any radiological contamination. At 0940 the ER received a call that a 17-year old male with a puncture wound to the chest and a broken arm was being transported to the hospital. All of the necessary vital signed and patient status information was successfully communicated to the treating medical staff. The victim arrived wrapped in a sheet to prevent potential spread of contamination. Once the patient was stabilized and the injuries was treated, radiological monitoring of the individual began. Radiological monitoring was performed using the appropriate rate and distance from the individual. Medical staff demonstrated the ability to decontaminate successfully the individual to contamination levels below the action levels according to their procedures. While performing decontamination procedures, the response staff became confused about when to determine that the victim was decontaminated and ready to release for continued medical care. Additional training was delivered by the Department of Health and Senior Services. Response staff successfully demonstrated their understanding of background, contamination limits, and decontamination requirements. This issue is considered closed.

All activities demonstrated at Callaway Community Hospital were adequately demonstrated and according to the plans and procedures of the facility and the extent of play agreement for the exercise.

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

a. MET: 1.e.1, 3.a.1, 6.d.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. NOT DEMONSTRATED: None

e. PRIOR ISSUES - RESOLVED: None

f. PRIOR ISSUES - UNRESOLVED: None

# 4.2.3.2. Callaway County Ambulance District

Criterion 1.e.1: This criterion was adequately demonstrated in accordance with the plans, procedures, and the extent of play agreement. No issues were identified..

The Callaway County Ambulance Service has sufficient direct reading dosimeters in the 0-5 R range for their crews to utilize. In addition, there are also sufficient Optically Stimulated Luminescence (OSL) dosimeters are also stored with the Survey Instrument Kits.

Six Survey Instruments Kits are maintained by the Ambulance Service. These Kits contain the above dosimeters, 1 CDV-715 (0-500 R/hr) Survey Meter and 1 CDV-700 (0-50 mR/hr) Survey Meter with Pan Cake probe.

KI was also available for the ambulance crew. The KI had an expiration date of 8/20/2013.

Criterion 3.a.1: This Criterion was adequately demonstrated in accordance with plans, procedures and the extent o play agreement.

The Callaway County Ambulance Service has sufficient direct reading dosimeters in the 0-5 R range for their crews to utilize. In addition, there are also sufficient Optically Stimulated Luminescence (OSL) dosimeters are also stored with the Survey Instrument Kits. Crew members were briefed concerning the use of dosimetry, including how often to check the direct-reading dosimeter and to notify their supervisor if the administrative limit of 1 R was reached. They were also instructed in the use of the Optically Stimulated Luminescence (OSL) dosimeters and who to turn them into at the end of their shift.

The crew also received a briefing on the use of KI, which included when they would take it, who would authorize them to take it, and the medical reasons why they might not want to take the drug.

Criterion 3.b.1: This Criterion was adequately demonstrated in accordance with plans,

procedures and the extent o play agreement.

The crew received a briefing on the use of Potassium Iodide (KI) that included when they would take it, who would authorize them to take it, and the medical reasons why they might not want to take the drug. KI administration units are provided to the ambulance service by the Callaway County EOC. All administration units have an expiration date of August, 2013.

Criterion 6.d.1: The Callaway County Ambulance District staff successfully demonstrated the ability to provide monitoring, decontamination, and medical services to contaminated injured individuals. This demonstration occurred as an out-of-sequence demonstration at the Callaway Community Hospital, Fulton, Missouri.

The Ambulance District operates four ambulances from its Fulton, Missouri, station. All are fully equipped, and the service is licensed by the State of Missouri and is staffed by certified Emergency Medical personnel.

The service's primary approach to contaminated persons is to place life-safety and life-saving needs first. Accordingly, the service possesses sufficient supplies to wrap/encapsulate patients and transport them in ambulance units properly prepared for the transportation of contaminated paitents. This procedure was properly demonstrated.

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

a. MET: 1.e.1, 3.a.1, 3.b.1, 6.d.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. NOT DEMONSTRATED: None
e. PRIOR ISSUES - RESOLVED: None
f. PRIOR ISSUES - UNRESOLVED: None

# 4.2.3.3. Hermann Reception and Care Center

Criterion 1.a.1: This criterion was adequately demonstrated pursuant to existing plans and procedures and in accordance with the negotiated extent of play agreement.

The Division of Family Services (FSD) with the support of other Department of Social

Services Divisions, has the responsibility for the organization and administration of the Reception and Care Center (RCC), and the American Red Cross (ARC) has the responsibility for the operation (meeting everyday needs) of the RCC. The RCC is a cooperative effort by both agencies. Thus, people from one agency may be temporarily "loaned" to the other agency if conditions warrant.

The Gasconade and Franklin County FSD offices have approximately 98 staff members; and the Gasconade and Franklin County Chapters of the American Red Cross have approximately 45 paid and volunteer members which would respond to the Hermann Middle School. Approximately 23 FSD/ARC personnel are required to operate the RCC during one shift. Twenty-four hour continuous operations can be sustained using the available FSD and ARC personnel.

Upon declaration of an emergency at Callaway NPP, the Family Support Division (FSD) representative in the State EOC will contact the Franklin County and Gasconade County FSD and the American Red Cross. Contact will also be made to the FSD Area 2 Office to inform them of the activation of the Hermann Middle School Reception and Care Center.

The County FSD Director will notify the Administration at the Hermann Middle School, Gasconade County Emergency Management Agency and call out local personnel to open, activate and staff the Hermann Middle School RCC. The ARC will notify the Franklin County Chapter of the ARC which will notify the Red Cross volunteers to report to the RCC and begin operations.

Radiological monitors will be contacted by the Operations Officer in the State Emergency Operations Center.

A roster documenting sufficient staffing was reviewed. Staff was pre-staged but reported that they could normally respond within one hour of notification.

Criterion 1.c.1: This criterion was adequately demonstrated pursuant to existing plans and procedures and in accordance with the negotiated extent of play agreement.

In addition to staff assigned to monitoring, male and female decontamination, vehicle and emergency worked decontamination, registration, security and other functions, the Reception and Care Center is managed by an Administrator assisted by an Operations Coordinator, Support (logistics) Coordinator and Radiological Coordinators. In addition,

coordination is maintained with the county emergency management agency, the local fire and emergency medical services and the local police department and sheriffs office.

All personnel demonstrated a thorough understanding of the plans and procedures and an ability to peform their assigned duties, to include providing direction and control, during this exercise.

Criterion 1.d.1: This criteria was adequately demonstrated pursuant to existing plans and procedures and in accordance with the negotiated extent of play agreement.

The Hermann Reception and Care Center (RCC) utilizes landline telephone, cellular telephone, two-way radio and RACES 2-meter radio for communications. Telephone and radio communications were demonstrated during this exercise. All systems functioned properly.

Criterion 1.e.1: This criterion was a adequately demonstrated in accordance with plans, procedures, and the extent of play agreement. No issues were identified.

Gasconade County maintains 10 survey instruments kits and a portal monitor at the County Emergency Operations Center for the Hermann Middle School Reception Center. These instruments are delivered once the Reception Center is activated. Each kit contains 1 CDV-715 Survey Meter and 1 CDV-700 Survey Meter with Pancake probe or a Geiger-Mueller Tube. In addition, 64 Optically Stimulated Luminescence (OSLs) dosimeters are stored with the Survey Instrument Kits. All kits contained instruments having a current calibration date.

The Missouri Department of Transportation brings sufficient wooden barricades and cones to establish access control to the reception center and funnel arriving vehicles into the vehicle monitoring area.

Criterion 3.a.1: The Hermann Reception and Care facility personnel demonstrated the ability to manage, monitor, and record radiological exposure to the team. The emergency response staff received direct reading dosimetry (0-5R, Stephen, or Dosimeter 611 0-5R), and permanent record dosimetry (Landauer, Luxel Optically Stimulated Luminescence. All direct reading dosimeters were zeroed with a CD V-750 Dosimeter Charger prior to distribution. The personnel received an initial briefing, filled out an exposure record sheet, and demonstrated the procedures to read dosimetry every 30 minutes. Participants demonstrated their knowledge of their exposure limits.

All activities demonstrated at Hermann Reception and Care Center were adequately demonstrated and according to the plans and procedures of the facility and the extent of play agreement for the exercise.

Criterion 6.a.1: This Criterion was adequately demonstrated in accordance with the plans, procedures, and extent of play agreement.

This was an out-of-sequence demonstration, beginning at 1500 hours on June 26, 2007. The Hermann Middle School located in Hermann, Mo. has been designated as a Reception and Care Center (RCC) for radiological emergencies at the Callaway Nuclear Power Plant. The monitoring, decontamination and registration of evacuees occurred at the RCC. The staff followed procedures found in the Hermann Middle School RCC Plan dated November 2006.

Initial Monitoring:

The radiological monitoring of evacuees was accomplished using hand-held survey instruments and portal monitors. Nine kits of hand-held survey instruments were available at the RCC. Additional or back-up kits are available from the Missouri Nuclear Emergency Team (MoRET) office. Each kit consisted of one CDV-715 (0-500 R/hr) ion chamber and one CDV-700 0-50 mR/hr) pancake Geiger-Mueller detector with headphones. The instruments were all within current annual calibration. The CDV-700's were calibrated in January 2007 and the CDV-715's were calibrated in December 2006. The instruments were pre-operationally checked prior to use. This was accomplished by exposing the probe to a Cesium 137 check source with known radiation levels and comparing the meter reading to that posted on the calibration sticker (+/- 20 %). All hand-held survey instruments passed the pre-operational checks. The portal monitor was a Science Applications International Corporation (SAIC) Model PPM-2000A. This portal contains four plastic scintillation detectors designed to detect one microCurie (uCi) of Cesium 137 contamination on individuals. The portal was pre-operationally checked by following the manufacturer's recommendation. This included exposing the detectors to a one uCi Cesium 137 check source and comparing the digital readout to that obtained during calibration. The portal monitor passed the pre-operational checks. Additional or back-up portal monitors are available from the Missouri Nuclear Emergency Team (MoRET) office.

By interview, it was determined that thirteen individuals are trained to provide personnel

monitoring. All staff who might be exposed to radiation or radioactive material were required to wear a MoRET supplied Optically Stimulated Luminescent (OSL) permanent record dosimeter. Sixty-four OSLs were available at the RCC. Additional OSLs are available from the Missouri Nuclear Emergency Team (MoRET) office.

The number of evacuees that must be monitored within twelve hours at the RCC is 267. Six individuals were monitored in two minutes and forty seconds. Therefore, it would take only two hours to monitor 267 individuals.

The personnel action level for determining the need for decontamination is 100 counts per minute above background. If an individual exceeds this limit, he or she is separated from non-contaminated individuals and re-survey with a CDV-700. At this time, the contamination is identified on the Personnel Decontamination Survey Form and the individual is sent to the male or female locker room for decontamination. Non-contaminated or clean individual are sent to the registration area for processing.

Contamination within the facility is minimized by the use of stanchions, signage, booties, disposable surgeon gloves, step-off-pads, colored tape and plastic bags. Routing of individuals within the facility ensures separation of contaminated and non-contaminated individuals.

Female Decontamination:

Evacuees entered the Reception Center and were directed through a portal monitor. If no contamination were detected, the evacuee was directed to the Registration Station located in the gymnasium. If the portal monitor alarmed, the evacuee was instructed to back up and to step to a side. There the evacuee was monitored for contamination using a CDV 700 with a pancake probe. As the evacuee was being monitored, a recorder completed a Personal Decontamination Survey Form for the evacuee. Personal information was requested from the evacuee and recorded. The location of contamination found on the evacuee and count rate encountered was mapped and recorded as the monitor indicated.

After the monitoring was complete, the contaminated evacuee was given a copy of the Personal Decontamination Survey form and was directed to a decontamination station. The path from the portal monitor to the decontamination stations was marked with placards, rope and cones. Female decontamination and monitoring was located in the female locker room adjacent to the gymnasium. Male decontamination and monitoring

was located in a male locker room adjacent to the gymnasium. The contaminated evacuees were directed from the portal monitor to proceed down a hall, exit the building and enter the Decontamination Station through an outside entrance.

The female locker room had a demarcation defining a dirty path leading from the outside entrance into the shower decontamination area and a clean path leading from the shower to an exit leading to the gymnasium. The paths were clearly defined using tape on the floor and rope barricade. Placards were taped to the wall indicating the need for decontamination if the count rate was 100 counts per minute (cpm) above background. Background was measured at 20 cpm and the need for decontamination was marked as being a count rate above 120 cpm. All the emergency workers knew the count rate for determining when decontamination was necessary.

Decontamination supplies, soap, shampoo, and towels, were available and were conveniently located in the shower area. Several sizes and several sets of Tyvak coveralls and booties were available as temporary clothing.

Batteries were installed, and battery and operability checks were performed on a CDV 700 with a pancake probe. The CDV 700 had a calibration dated January 28, 2007 and was used for monitoring in the decontamination station. Batteries were installed in a CDV 715 and only a battery check was performed. This instrument had a calibration dated December 13, 2006 and was positioned to provide a general area monitor near the area where the evacuees would enter the decontamination station.

Each of the emergency workers were issued a Landauer Optically Stimulated Luminescent Dosimeter contained in a plastic holder which was worn on the out of their clothing.

Each of the emergency workers also donned protective clothing consisting of a Tyvak lab coats, booties and double layers of gloves. The gloves were frequently changed to prevent the spread of contamination. Booties and the floor were monitored for contamination after evacuees were decontaminated and departed the area. The protective clothing were doffed at the conclusion of the activities using proper protocol to prevent the spread of contamination. The protective clothing and any other contaminated items were placed in a waste container labeled as radioactive waste.

At approximately 1612, the first contaminated female evacuee entered the female locker room via the marked pathway. She was greeted at the doorway and was asked for her

Personal Decontamination Survey Form. Information was reviewed and a Monitor began performing a survey to confirm the presence and location of the contamination. The evacuee had contamination on her right arm and hand and on the bottom of her shoes. She was directed to the shower area. A recorder asked for personal belongings and completed a Receipt for Contaminated Personal Belongings form. Personal items were bagged and labeled. The evacuee was provided a copy of the receipt before she departed the area and was told her belongings would be monitored and returned if clean and would be confiscated with reimbursement if contaminated and could not be decontaminated.

The evacuee was then instructed to remove clothing, which were placed in a waste container labeled as radioactive waste, and told to take a shower concentrating washing in the contaminated area. Upon completion of the shower, the evacuee was re-monitored. If contaminated limits still exceeded the posted count rate for decontamination, the process was repeated. If the contamination levels were not decreasing after subsequent efforts, the evacuee would be provided temporary clothing, contaminated areas would be covered, and she would be instructed to a bench in the locker room to wait for transportation to a hospital for further evaluation and treatment. The facility management would be notified and would make all necessary arrangement for transportation.

Once clean or below the count rate for determining the need for decontamination, the evacuee was provide temporary clothing. A "CLEAN" sticker was stuck onto her temporary clothing and she was instructed to proceed to the registration station in the gymnasium.

At the conclusion of the demonstration, protective clothing was doffed using proper protocol to prevent contamination. All protective clothing was placed in a waste container labeled as radioactive waste. All contaminated items were bagged and also placed in the waste container. All dosimetry would be returned to the Radiological Officer at the Reception Center at the conclusion of the task.

Male Dedcontamination:

The Owensville Fire Department demonstrated the ability to perform radiological monitoring and decontamination of evacuees while controlling contamination of the facility. These functions were demonstrated at the Herman Middle School, Herman, Missouri. The radiological monitoring team was equipped with sufficient equipment

and supplies to perform decontamination of evacuees and to control contamination of the facility including coveralls, gloves, booties, tape, plastic baggies, signs, and foot-traffic control cones. Decontamination supplies included trash bags, towels, rubber boots, shoe covers, shampoo, antibacterial soap, shaving cream, bar soap, scrub brushes, and replacement clothing. Response personnel used CD V-700 survey instruments fitted with a pancake probe to perform follow-up contamination surveys, and surveys following decontamination procedures. All instruments were labeled with calibration dates, and range of readings. All instruments' calibrations were current (12/13/2006). The monitoring teams performed the appropriate operability checks on instruments.

The monitoring team demonstrated their knowledge of contamination action levels (100 cpm above background) to determine successful decontamination. The monitoring team determined background readings prior to receiving any individuals and continuously monitored background readings throughout the demonstration. When an individual was determined to be contaminated, the monitoring team received the individual in the decontamination location of the facility for decontamination of the effected areas. They collected their personnel effects and labeled a baggie with their name, address, and an inventory of their personal effects. Response personnel instructed the evacuee to remove articles of clothing, to wash the contaminated area according to pre-established procedures. After washing the contaminated area, response personnel performed a follow-up survey. Monitoring techniques were inconsistent with regard to probe speed and distance from the individual. However, after additional training, the team successfully redemonstrated their monitoring techniques. This issue is considered closed.

The team also demonstrated their knowledge of contamination control to limit the spread of contamination to themselves, their equipment, and the facility. They simulated donning and doffing the appropriate personal protective equipment, covered the instrument probe in plastic, and established clean and contaminated areas of the facility with ropes and tape. Clean and contaminated areas were clearly marked with tape and rope.

All activities were adequately demonstrated according to the plans and procedures of the facility and the agreed upon extend of play.

Criterion 6.b.1: This criterion was adequately demonstrated in accordance with plans,

procedures, and the extent of play agreement.

Vehicle Monitoring and Decontamination at the Hermann Middle School Reception Center is staffed by the Missouri Department of Transportation and the Herman Volunteer Fire Department #1. In addition to the monitoring and decontamination of evacuee vehicle, emergency worker vehicles are monitored and decontaminated at this facility,

The monitors have access to two survey instrument kits provided by the county EOC. The kits contain 1 – CDV-715 Survey Meter (0-500 R/h), 1 – CDV-700 Survey Meter with pancake probe or Geiger-Mueller Tube, and sufficient Opitically Stimulated Luminescence (OSLs) dosimeters for monitor use. Individuals were familiar with the procedures concerning the wearing and what to do with the OSLs. The monitors successfully performed the operability checks on the instruments and determined that the decontamination action level would be 110 counts per minute (100 cpm over background).

Vehicles reporting to the reception center are funneled into the vehicle monitoring area. Drivers are instructed to secure valuable in the vehicle trunk, given a receipt for the vehicles and keys, and instructed to proceed with their passengers into the reception center for monitoring. Procedures for the facility are to monitor the vehicles and if found clean, they are moved (by an individual suited up in protective clothing, booties and gloves) into the clean parking area. If found to be contaminated they are moved into the contaminated parking area until they are ready to be decontaminated by the Fire Department. Once the vehicle is found to be within the decontamination action levels, it is moved to the clean area by another individual in protective clothing to the clean vehicle parking area. The vehicle is locked and the keys, along with a copy of the receipt and the decontamination form indicating that the vehicle is clean, are provided to control person at the reception center exit. This individual has the owner informed and following an identification check provides the keys to the owner.

Vehicle monitors followed their procedures and monitored each tire, wheel, and fender well, the radiator, grill and headlight area, front of th engine compartment, air filter, undercarriage and back end and finally the interior of the vehicle. They followed their procedures concerning the speed and distance of the probe from the vehicle. They used good monitor technique and contamination control procedures on the vehicle.. Once contamination was identified (by the evaluator) the location was marked with red tape and the amount of contamination indicated on the vehicle survey form. After all of

the above locations were monitored and all contamination indicated by red tags, the vehicle was moved to the contaminated parking area to await decontamination.

The vehicle was moved from the contaminated parking area to the decontamination area, where it is positioned under the water boom of the fire truck. After several rinsing by the water boom and a smaller hose is used to spray the undercarriage, the vehicle is again monitored. If contamination is still indicated, the above procedure is once again performed until the vehicle is under the decontamination action levels and is moved to the clean parking area and vehicle is released to the owner following the procedures indicated previously. All of the above is repeated until all contaminated vehicles have been decontaminated or it is found that they cannot be decontaminated the staff will seek assistance or advice from the State Department of Health and Senior Services.

Run off water from the decontamination area is funneled into a drainage ditch that flows into a local sewer drain.

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

a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 3.a.1, 6.a.1, 6.b.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. NOT DEMONSTRATED: None
e. PRIOR ISSUES - RESOLVED: None
f. PRIOR ISSUES - UNRESOLVED: None

# APPENDIX 1

# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| ARC | American Red Cross |
| ARCA | Area Requiring Corrective Action |
| BNSF | Burlington Northern Sante Fe Railway |
| BURS | Backup Radio System |
| CFR | Code of Federal Regulations |
| CNPP | Callaway Nuclear Power Plant |
| DHS | US Department of Homeland Security |
| DOE | US Department of Energy |
| DOH | Department of Health |
| DOT | Department of Transportation |
| DPS | Department of Public Safety |
| EAS | Emergency Alert System |
| EBS | see "EAS" |
| ECC | Emergency Communications Center |
| EMD | Emergency Management Director |
| EOC | Emergency Operations Center |
| EOF | Emergency Operations Facility |
| EPA | US Environmental Protection Agency |
| EPZ | Emergency Planning Zone |
| FBI | Federal Bureau of Investigation |
| FEMA | Federal Emergency Management Agency |
| IC | Incident Commander |
| JIC | Joint Information Center |
| JPIC | see "JIC" |
| KI | Potassium Iodide |
| MoDOT | Missouri Department of Transportation |
| MoNAP | Missouri Nuclear Accident Plan |
| MoNET | see "MoRET" |
| MoNG | Missouri National Guard |
| MoRET | Missouri Radiological Emergency Team |
| NIMS | National Incident Management System |
| NRC | US Nuclear Regulatory Commission |
| NRP | National Response Plan |
| NUREG-0654 | Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness |
| ORO | Offsite Response Organization |
| PAD | Protective Action Decision |
| PAR | Protective Action Recommendation |
| PHS | Public Health Service |
| PIO | Public Information Officer |
| RAC | Regional Assistance Committee |
| RACES | Radio Amateur Communications Emergency Service |
| RCS | Reactor Cooling System |

| | |
|---|---|
| REP | Radiological Emergency Preparedness |
| REPP | Radiological Emergency Preparedness Program |
| ROC | see "RRCC" |
| RRCC | Regional Response Coordination Center |
| SEMA | State Emergency Management Agency |
| SENTRY | Proprietary, Secure Computer Network |
| SEOC | State Emergency Operations Center |
| SP | State Patrol (Law Enforcement) |
| TACP | Traffic Access Control Point |
| TL | Team Leader |
| UPRR | Union Pacific Railroad |
| USCG | US Coast Guard |
| USDA | US Department of Agriculture |
| VOAD | Voluntary Organizations Active in Disasters |

# APPENDIX 2

# EXERCISE EVALUATORS AND TEAM LEADERS

DATE: 2007-08-08, SITE: Callaway Nuclear Power Plant, MO

| LOCATION | EVALUATOR | AGENCY |
|---|---|---|
| Missouri State Emergency Operations Center | Robert Dye<br>Pat Tenorio<br>*Norm Valentine | EPA |
| Missouri Dose Assessment/Field Team Coordination | Richard Grundstrom<br>*David Smith<br>Kenneth Wierman | ICF<br>FEMA<br>FEMA - Hq |
| Missouri Radiological Field Monitoring Team A | *Garianne Howard | |
| Missouri Radiological Field Monitoring Team B | *David Jacobson | |
| Missouri Joint Public Information Center | Willis Larrabee<br>*Roy Smith | |
| Missouri Forward Command Post/EOF | *Lyle Slagle | |
| EAS Station - KTXY | *Rex Jennings | |
| Missouri School for the Deaf | *David Smith | FEMA |
| Fulton Treatment Center | *David Smith | FEMA |
| Callaway County/Fulton Emergency Operations Center | *Audie Canida<br>John Dixon<br>Jeff McSpaden | FEMA<br>Region VII |
| South Callaway R-II Schools | *Audie Canida | FEMA<br>Region VII |
| North Callaway R-I Schools | *David Smith | FEMA |
| Callaway County Jail | *David Smith | FEMA |
| Rosa Parks Juvenile Center | *David Smith | FEMA |
| Gasconade County Emergency Operations Center | *Al Lookabaugh<br>Carl McCoy | <br>ICF |
| Gasconade R-1 Public Schools | *David Smith | FEMA |
| Montgomery County Emergency Operations Center | Terry Blackmon<br>*Joe Schulte | ICF |
| Osage County Emergency Operations Center | Gary Bolender<br>*Sharron McDuffie | <br>DHS |
| Osage R-1 School District | *Audie Canida | FEMA<br>Region VII |
| Callaway Community Hospital | *David Smith | FEMA |
| Callaway County Ambulance District | *David Smith | FEMA |
| Hermann Reception and Care Center | *David Smith | FEMA |

* Team Leader

FEMA

February 12, 2007

Mr. Ronald M. Reynolds
Director
State Emergency Management Agency
2302 Militia Drive
P.O Box 116
Jefferson City, Missouri 65102

Dear Director Reynolds:

The following are provided as the exercise requirements for the full-scale exercise at the Callaway Nuclear Power Plant on Wednesday, August 8, 2007, and for related, out of sequence evaluations conducted as part of the overall 2007 Callaway exercise.

This exercise will be evaluated by personnel from the Department of Homeland Security – Federal Emergency Management Agency, personnel from other Federal agencies and contracted evaluators.

The dress rehearsal will be conducted Wednesday, June 27, 2007, and, per your request, the rehearsal will be observed by a limited staff of evaluators from this office and contract staff.

The requirements set forth herein are **IN ADDITION** to the generic extent of play criteria for each evaluation area/location. The generic extent of play requirements are **INCLUDED** as requirements for this exercise. The following requirements clarify, modify or extend those generic criteria and **ALSO** will be evaluated.

**EVALUATED LOCATIONS/AREAS:**

There are a total of twenty-one (21) facilities, locations or performance areas to be evaluated as part of this exercise.

**Exercise Date – August 8, 2007**

The following facilities/locations/areas will be evaluated as part of the 2007 Callaway exercise on August 8 commencing at 8:00 a.m., approximately:

1. Missouri State Emergency Operations Center

2. Dose Assessment Staff & Field Team Coordination
3. Radiological Field Monitoring Teams
4. Joint Information Center
5. Forward Command Post/Emergency Operations Facility
6. Radio Station KTXY (Emergency Alert System)
7. Callaway/Fulton Emergency Operations Center
8. Gasconade County Emergency Operations Center
9. Montgomery County Emergency Operations Center
10. Osage County Emergency Operations Center

**Out of Sequence Date – June 26, 2007**

1. Callaway Community Hospital (9:30 a.m.)
2. Callaway County Ambulance District (9:30 a.m. concurrent with the hospital)
3. Hermann Middle School Reception and Care Center (3:00 p.m.)

**Out of Sequence (Date and Times TBD)**

The following locations (subject to mutual agreement between my staff and yours) will be evaluated out of sequence on the date and at times to be determined. This office is coordinating this scheduling with your staff.

1. Callaway County Jail
2. Missouri School for the Deaf
3. Rosa Parks Juvenile Center
4. Fulton Treatment Center
5. Gasconade R-1 Public Schools
6. Osage R-1 School District
7. North Callaway R-1 Schools
8. South Callaway R-2 Schools

**EVALUATION AREA 1:** ***EMERGENCY OPERATIONS MANAGEMENT***

**Sub-element 1.a – Mobilization**

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

All telephone calls to mobilize personnel or place them on standby must actually be made. A log detailing the names, agency affiliations and effective notification and arrival times for all personnel thus notified must be maintained and will be provided to the evaluator.

The pre-positioning of staff is not authorized except as noted below.

**Personnel at the out of sequence locations may pre-position but should not commence set-up activities (primarily at the reception and care facility) or operations before evaluator arrival.**

Personnel assigned to the Radiological Field Monitoring Teams may pre-position at Missouri Department of Health and Senior Services facility located at 930 Wildwood in Jefferson City where they will meet the assigned evaluators PRIOR to the issuance of instrumentation, the performance of operability checks and any team briefings.

Personnel of the Joint Information Center (JIC) may pre-position at their assigned duty stations(s) *subject to a delay of one hour before they may participate in the exercise.*

At those locations evaluated on August 8 *and* at the Hermann Middle School Reception and Care Center, complete rosters of personnel required to staff the facilities/operations on a twenty-four hour basis must be prepared and ready for examination by the evaluators assigned. Copies of these rosters will be provided to the evaluators as part of the exercise documentation.

**Sub-element 1.b – Facilities**

**Criterion 1.b.1: Facilities are sufficient to support the emergency response. (NUREG-0654, H)**

No Modifications

**Sub-element 1.c - Direction and Control**

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

No Modifications

**Sub-element 1.d – Communications Equipment**

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

All facilities, performance areas and field teams that are evaluated must demonstrate the proper use of two (2) communications systems, one primary and one back-up.

Cellular telephony shall not be relied upon as a means of primary or backup communication except in situations wherein satellite-based cellular systems are employed.

The evaluators will be provided copies of all messages and logs of message traffic at each fixed facility. This includes printed copies of all computer-based logs, messages, rosters and other communications.

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

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

Verification of dosimetry equipment inventories and Potassium Iodide supplies, as applicable, will occur at all facilities that maintain dosimetry and/or KI supplies in accordance with the plans.

**EVALUATION AREA 2: *PROTECTIVE ACTION DECISION-MAKING***

**Sub-element 2.a – Emergency Worker Exposure Control**

**Criterion 2.a.1: ORO(s) use a decision-making process, considering relevant factors and appropriate coordination, to insure that an exposure control system, including the use of KI, is in place for emergency workers including provisions to authorize radiation exposure in excess of administrative limits or protective action guides. (NUREG-0654, K.4.)**

No Modifications

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

**Criterion 2.b.1: Appropriate protective action recommendations are based on available information on plant conditions, field monitoring data, and licensee and ORO dose projections, as well as knowledge of on-site and off-site environmental conditions. (NUREG-0654, I.8., 10., 11. and Supplement 3.)**

No Modifications

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

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

No Modifications

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

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

During the emergency phase of the actual exercise, all appropriate actions (e.g., notifications, EAS messages, etc.) must be demonstrated for any public or private schools, nursing homes or day care facilities affected by protective action recommendation.

All notification to school districts must be demonstrated. Simulation of this notification is not acceptable. A log indicating the times that each special facility were notified must be maintained, and this log will be provided to evaluators as part of the exercise documentation.

EVALUATION AREA 3: *PROTECTIVE ACTION IMPLEMENTATION*

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

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

During the out of sequence exercise on June 26 and in addition to any other equipment, materials and supplies normally employed, the Callaway Community Hospital and the responding unit from the Callaway County Ambulance District must have dosimeters and a dosimeter charger available for this demonstration and be knowledgeable of procedures for their use and of their exposure limits.

At the Hermann Middle School Reception and Care Center, emergency workers must demonstrate their knowledge of emergency worker exposure control. Workers must have dosimeters and a dosimeter charger available (as part of their radiological protective kits) for this demonstration and be knowledgeable of procedures for their use and of their exposure limits.

During the school evaluations, the bus drivers must have dosimetry and a dosimeter charger available for demonstration and be knowledgeable of procedures for using the dosimetry. The drivers must also demonstrate understanding of the exposure limits established for their protection.

**Sub-element 3.b – Implementation of KI Decision**

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

During this exercise, if the decision to use Potassium Iodide (KI) is made, the instructions must be appropriately disseminated to all personnel including those deployed (simulated) for traffic and access control and other missions. However, if the decision to use KU is not required by the scenario, all emergency workers at all facilities will be expected to demonstrate this criterion through interview their knowledge of the procedures for the authorization and use of KI. Actual administration of KI will be simulated. If any emergency workers indicate they would refuse to take KI, procedures must be demonstrated to either take alternative protective measures for the individual(s) or replace them.

During the medical drill on June 26, the responding ambulance crew must have Potassium Iodide available and be knowledgeable of procedures for its authorization and ingestion.

During the school evaluations, the bus drivers must have Potassium Iodide available and be knowledgeable of procedures for its authorization and ingestion.

At all locations where KI will be distributed, a copy of letter extending the shelf life (if applicable) of the KI stocks must be available for inspection. Otherwise, all dated KI packets must be clearly marked and available for visual examination.

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

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

Telephone calls to special facilities, individuals with special needs, and transportation providers (except as indicated below) may be simulated.

Actual telephone calls must be made to at least one-third of the transportation providers including those utilized in providing transportation for disabled individuals. These calls must be documented, and this documentation must be provided to the evaluators.

All facilities, individuals with special needs, and transportation providers required to be notified must be clearly identified and the actual or simulated contacts appropriately documented. This documentation must be provided to the evaluators.

Logs documenting regular tests of Telecommunications Devices for the Deaf (TDDs) must be provided to the evaluators *or* an actual demonstration of TDD use must be undertaken as part of the exercise.

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

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

The ability to implement appropriate protective actions for schools will be evaluated through interviews conducted at the Gasconade R-I Public Schools, Osage R-I Schools, the South Callaway Schools and the North Callaway Schools. An exercise evaluator will be assigned to each school district to interview the district superintendent (or other designated school official) and principal. In addition, at least one school bus driver must be available for an interview at each school to determine his or her awareness of and preparedness for the evacuation of school children.

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

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

Deployment of traffic and access control personnel to assigned locations will be simulated. The locations where traffic and access control would be established must be appropriately documented.

The simulated staffing of traffic and access control points must be appropriately coordinated with all involved jurisdictions. At least two individuals, who would normally perform traffic and access control, must be available at each of the four county EOCs for interviews to demonstrate knowledge of their roles and responsibilities concerning traffic and access control as well as appropriate knowledge concerning dosimetry, exposure control and the ingestion of Potassium Iodide.

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

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

No Modifications

**EVALUATION AREA 4: FIELD MEASUREMENT AND ANALYSIS**

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

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

Radiological detection instruments, equipment, and protective clothing as detailed in the Missouri Nuclear Accident Plan should be available for the demonstration. All instruments, equipment, protective clothing and supplies are subject to evaluator examination.

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

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

No Modifications

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

**Criterion 4.a.3: Ambient radiation measurements are made and recorded at appropriate locations, and radioiodine and particulate samples are collected. Teams will move to an appropriate low background location to determine whether any significant (as specified in the plan and/or procedures) amount of radioactivity has been collected on the sampling media. (NUREG-0654, I.8., 9., 11.)**

Each of the deployed field monitoring teams must take sufficient radiation measurements to identify the plume. Copies of all reading/measurement documentation must be provided to the evaluators.

Activities related to the use of equipment and procedures for the collection and transport of samples from areas that received deposition from the airborne plume must be explained during interviews with the evaluator. The evaluator will interview the field teams as to the procedures for the physical turn over of samples (to include transfer of custody forms) to the agency that will transfer the samples to the laboratory.

Field team equipment checks will be conducted at the Department of Health and Senior Services facility located at 930 Wildwood in Jefferson City. The assigned evaluators must be present PRIOR to the issuance of instrumentation and the performance of operability checks.

**EVALUATION AREA 5: *EMERGENCY NOTIFICATION & PUBLIC INFORMATION***

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

**Criterion 5.a.1: Activities associated with primary alerting and notification of the public are completed in a timely manner following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. The initial instructional message to the public must include as a minimum the elements required by current FEMA REP guidance. (10 CFR Part 50, Appendix E & NUREG-0654, E. 1., 4., 5., 6., 7.)**

An evaluator will be assigned at the EAS station (KTXY) to observe the station's procedures for receiving, documenting and broadcasting exercise related messages. Actual receipt of the messages from the appropriate County EOC or the State EOC must be demonstrated and documented. Following receipt of the message at the station, procedures to broadcast the message must be fully demonstrated up to the point of transmission.

**Actual broadcast of the messages or EAS test messages is neither required nor permitted.**

The FEMA evaluator will remain at the EAS station until the termination of the exercise to observe receipt and broadcast procedures for all EAS messages and Public Information messages.

Copies of all EAS messages and Public Information messages will be provided to the evaluator at the conclusion of the exercise.

Facilities sending messages to the radio station must demonstrate their ability to verify receipt of messages at the radio station.

The following basic elements should be included in the initial EAS announcements.

1. Identification of the State or local government organization and the official with authority for providing the alert signal and instructional message.
2. Identification of the commercial nuclear power plant and a statement that an emergency exists at the plant.
3. Reference to Radiological Emergency Preparedness specific emergency information (e.g. brochures and phone book information) for use by the general public during an emergency.
4. A closing statement asking that the affected and potentially affected population monitor appropriate EAS radio stations for additional information.

The procedures for siren activation must be demonstrated up to the point of actual activation. Siren activation shall be simulated.

In addition, tone alert radio activation will be simulated, and methods to activate the "reverse 9-1-1 system will be explained.

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

**Criterion 5.a.2: Fast Breaker**

This criterion will not be demonstrated at this exercise.

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

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

To be demonstrated only if there is a (real or simulated) default in the primary alert and notification sequence. Evaluators may enquire by interview at the county EOCs concerning procedures for backup alerting and notification.

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

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

Media briefings, public information, and the public inquiry hotline (rumor control) will be coordinated at the Joint Information Center (JIC) located at the State Emergency Operations Center in Jefferson City.

Sufficient and timely media briefings should be conducted from this location.

Any trends in rumors identified by public inquiry hotline staff must be addressed by the JIC in news releases and/or media briefings. One or more messages should address a false or misleading rumor(s).

Evaluators will be assigned to the JIC to monitor public information and public inquiry hotline activities. Copies of all messages, message logs, news releases, and public information statements will be provided to the evaluators at each site.

This exercise will include redemonstration of open issues resulting from the previous evaluated exercise in May, 2005, at the Joint Information Center. Specifically, these issues are (1) Area Requiring Corrective Action (ARCA) 010-200-5-5b1-A-02 (related to inadequate provision of information to the media via telephone) and ARCA 010-200-5-5b1-1-A-03 (related to the provision of inaccurate and incomplete information at media briefings).

**EVALUATION AREA 6: SUPPORT OPERATION/FACILITIES**

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

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

The number of evacuees that must be monitored within twelve hours at the Hermann Middle School Reception and Care Center is 267. According to the plan, one portal monitor and one backup portal monitor will be available at the facility and will require two monitoring teams to operate them. At least one monitoring team with a CDV-700 (or CDV-715) with pancake probe must be available, pursuant to the plan, as a backup in the event the portal monitors cannot be used for some reason. Two additional monitoring teams must be available for evacuee (male/female) decontamination. Therefore, at least five teams must be available for demonstration at the reception center.

The facilities at Hermann Reception and Care Center utilized for monitoring and decontamination of evacuees must be set up for evaluation. This will require full staffing of personnel and the full provision of equipment and supplies required to accomplish monitoring and decontamination of evacuees and vehicles.

At least six evacuees must be processed at the reception center to demonstrate registration, monitoring, and decontamination capabilities. The monitoring sequence for these evacuees will be times by the evaluators to determine whether the reception center can adequately meet the twelve hour requirement referenced above.

Monitoring and decontamination procedures should be initiated for at least two male and two female evacuees.

Decontamination may be simulated (explained through an interview process).

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

All organizations that, per the plans, provide support of registration center activities must be present for evaluation. These include the Department of Health and Senior Services, the American Red Cross, the Missouri Radiological Emergency Team, the National Hard, the Department of Transportation, the Hermann Volunteer Fire Department and the Hermann Police Department.

In addition to sufficient staffing for one shift, documentation that additional personnel are readily available and rostered for twenty-four hour operation must be provided to the evaluators.

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

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

This criterion will be demonstrated at the reception center. Monitoring of at least one emergency worker vehicle must be demonstrated. Decontamination may be explained by interview; however, all equipment and materials necessary to conduct decontamination must be present and available for evaluator inspection.

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

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

The Callaway Community Hospital and Callaway County Ambulance District will demonstrate this criterion. The ambulance vehicle and crew must be monitored before release back into service. It is not necessary to demonstrate actual decontamination of the vehicle and crew; however, the crew must be knowledgeable of where, how and by whom this would be accomplished.

**IMPORTANT NOTE: In the event that an evaluator identifies an exercise issue, the evaluator will discuss it with the Team Leader, Controller, and Trainer (state or utility representative).If training and redemonstration will not affect the flow of the exercise, the trainer will provide immediate instruction and a re-demonstration will occur to correct the issue. The exercise report will detail the exercise issue and note that it was corrected.**

If you have any questions concerning the above, please contact David Smith, Callaway Site Specialist, at (816) 283-7029.

Sincerely,

Ronald L. McCabe, Chief
Radiological Emergency Preparedness Section

Copies: Mr. William Maier, Nuclear Regulatory Commission
Mr. John E. Dixon, DHS Headquarters
Mr. Edward Gray, SEMA
Mr. Stan Crawford, Ameren UE
Mr. Keith Henke, DHSS

At 0630 the Crew begins their walk-down of the control boards for the watch relief. By 0645 they assume the watch. Shortly before 0700 the Control Room Simulator (CRS) will simultaneously receive multiple annunciator alarms. Investigation by the CR watch-standers will reveal that a power supply (RK045B) to the Optical Isolators for the "B" train safety related annunciators has failed. The failure of the Optical Isolators will last for greater than 15 minutes leading to the conditions for declaration of an **Unusual Event (EAL 4 A )**.

Approximately 20 minutes after the annunciators come in, the "A" circulating Water pump trips off and the plant experiences a 25%. With a loss of Optical Isolators for > 15 minutes, minimum compensatory actions cannot be maintained and a change in reactor power $\geq \pm 10$ % occurs, an **Alert** should be declared **(EAL 4B)**.

At around 0745, Annunicators will be received for Process Radiation HI and HIHI. Alarms on the RM-11 for the N-16 monitors, GE RE 92, and SJ RE 02 will also be present. The Control room Simulator will receive indication of a Pressurizer low level deviation, Annunciator 32C. Upon evaluation, it will be determined that the Pressurizer is decreasing for an unknown reason at a rate greater than 50 gpm. The reactor should be manually tripped, the trip verified and a manual SI initiated. A **Site Emergency** should be declared on **EAL 2D (CTMT loss indicators 3a and 3b, RCS potential loss #5)**

Shortly after the Site Emergency is declared, Aux Feed will actuate. The TDAFP will start and supply Aux Feed to the S/Gs, but ABHV006, the steam supply to the TDAFP from "C" S/G fails to open upon the start signal, leaving the "B" S/G as the only source of steam to the TDAFP. The RCS leak should become apparent to the crew to be a tube rupture in the "B" S/G. Radiation levels on the exhaust of the TDAFP will begin to increase as the pump continues to run. Radiation levels will become high enough to quantify the release above normal operating limits during the timeframe of the Site Emergency. Before the Site Emergency conditions existed there were fluctuations on the grid which causes NB01 and NB02 to load shed and "lock out". NE02 starts and supplies NB02 but, NE01 will not come up to speed and its output breaker fails to close. This prevents the "A" MD AFP from being used as a source of Aux Feed Water and securing the TDAFP.

At the Site Emergency announcement the controller will inject a revised form to the participant that will direct personnel to simulate assembly. OCA sweeps by Security and the associated actions may be simulated by the Security Controller. Consideration of the downwind areas for evacuation should be evident in the discussions.

The release through the TDAFP Exhaust continues to increase. Within approximately 2 hours the levels on the exhaust will have exceeded the projected dose levels at the EAB require that a **General Emergency (EAL 1D)** should be declared on projected dose at the EAB exceeding a PAG. The event should be declared and the Initial Notification for the General Emergency and the initial PARs to evacuate 2 miles around and 5 miles downwind of the plant for sectors C, D, E, & F.

Projected doses based on effluent monitors will confirm that the radiological release has continued to increase making it necessary to extend the PARs to 5 miles around and 10 miles downwind in sectors C, D, E, & F. A wind shift is also planned for this scenario as an additional PI opportunity. Depending on

the actual time the Simulator Operator inputs the wind shift, it could occur at approximately the same time as the extended PARS are being developed adding sector G.
The Emergency team sent to troubleshoot ABHV006 will report back shortly after the wind shift and extended PARs notifications have been performed that the valve has been closed. This will allow C" S/G to be used as the source of steam for the TDAFP and the release to be stopped. Once the release has ended the drill can be focused on discussions in each facility identifying further actions to protect the core and continue cooling down. The facilities can stand down and the drill can be terminated when all objectives have been demonstrated.

**Graded Exercise Drill, August 8, 2007**
**On Site Sequence of Events**

| Scenario Time | Message or Event No. | Initiated by or from | Issued to | Message/Event |
|---|---|---|---|---|
| T=0 (0630) | | | **Lead Controller** | Drill conditions set. ERFs connected to Simulator. Communications verified. Ops Crew begins walk down and turnover preps. No major equipment is out of service except for "B" MD AFP for replacement of the packing gland. All systems statuses are all green |
| T + 15 (0645) | **Msg #1** | **Lead Controller** | **Plant Personnel** | Crew has the watch and crew briefings complete. **Plant announcement RR Drill has started.** |
| T+20 (0650) | **Mini Scn-1** | **OBS** | | Annunciator problem, various "B" train safety related annunciators come in due to a loss of power supply (RK045B Optical Isolator). OTO RK 0001 |
| T+35 (0705) | | **SM CR/SM** | **Crew** | An **UNUSUAL EVENT, EAL 4 A** should be declared. |
| T+50 (0720) | | **SM** | **Plant Personnel** | Plant announcement and notifications to Offsite Response Agencies are completed. |
| T+55 (0725) | **Mini Scn-2** | **OBS** | | Trip of "A" Circ Pump causes a 25% setback. |
| T+70 (0740) | **Msg CI-A** | **SM** | **Crew** | **ALERT declared, EAL 4B.** Plant announcement made. SAS contacted and directed to activate ERO pagers. Simulate site Sirens Activated on panel ECDQF1001 (Warning Siren Encoder panel) (OTN-ZZ-0000QF1) **Controller inject "Use drill Msg 7 for staffing the ERFs and issue CI-A page 2** |
| T+75 (0745) | **Msg #2** | **SIM Controller** | **CRS/Crew** | EO reports on inspection of CPDA 2104 Circ Water panel at Pump house. |
| T+85 (0755) | | **SM/Com** | **Offsite Response Agencies** | Offsite Response Agencies are notified. via SENTRY |
| T+110 (0820) | | **OBS** | | Process Radiation Annunciators (61 A and B) come in on the MCB. Initial RM-11 alarms on N-16 monitors, **GE RE 92** and **SJ RE 02. Pzr Low Level Deviation Alarm** (Annunciator 32C). RCS leak > 50 gpm detected. Manual Reactor trip. **SI** initiated. Loose Parts Monitor Alarm Annunciator. **TDAFP** starts and increasing Rad levels indicated on **TDAFP** exhaust. **CVCS** and sampling isolate. |

| Scenario Time | Message or Event No. | Initiated by or from | Issued to | Message/Event |
|---|---|---|---|---|
| T+110 (0820) | **Mini Scn -3** | | | A Grid voltage fluctuation occurs. The anomaly causes **NB01** to Load shed and locks out. **NE01** attempts to come up but does not load. **NE01** is locked out. **NE02** comes up and loads |
| T+125 (0835) | | **TSC** | **Plant Personnel** | A **Site Emergency. EAL 2D** should declared. Projected doses could also confirm Site Emergency on **EAL 1C** depending on the timing of dose projection calculations and the notification being made. Assembly of non-essential personnel and Accountability is **simulated***. |
| | **Msg. #3** | **Sim Controller** | **Crew** | Deliver Msg. #3 if an EO was dispatched to NB0112 and NB0209 Ensure drill |
| | **CI-A** | **TSC Lead Controller** | | ***Accountability "Simulated" message is delivered.** |
| T+140 (0850) | | **EOF** | **Offsite Response Agencies** | Offsite Response Agencies are notified via SENTRY |
| T+150 (0900) | **Msg. #4** | **Sim. Controller** | **Crew** | If an EO is dispatched to area 5 provide this message. |
| T+155 (0905) | **Msg. CI-B** | **TSC Lead Controller** | **Security Coord.** | TSC Lead Controller deliver approximately 30 min. after Accountability is called for |
| T+170 (0920) | **Mini Scn-4** | **OBS** | | The steam supply from **"C" S/G (ABHV 006),** will not open and only **"B" S/G** is available to supply the **TDAFP**. An EO is dispatched to investigate. |
| T+185 (0935) | | **CR / TSC / EOF** | | Radiation levels on **FC RE 385** continue to increase. Dose projections show above normal operation release rates but do not exceed a PAG limit at this time. |
| T+200 (0950) | | **CR / TSC / EOF** | | Radiation levels on **FC RE 385** continue to increase. NRC responders begin co-location process in emergency response facilities. |
| T+ 255 (1045) | | | | Radiation levels on **FC RE 385** continue to increase. Projected doses exceed PAG. |

| Scenario Time | Message or Event No. | Initiated by or from | Issued to | Message/Event |
|---|---|---|---|---|
| T+260 (1100) | | **TSC** | | A declaration of a **General Emergency** should be made, **EAL 1D** with PARs of 2 around and 5 miles downwind in **sectors C,D,E,& F.** |
| T+275 (1115) | | **EOF** | **Offsite Response Agencies** | Offsite Response Agencies are notified via SENTRY |
| T+300 (1145) | | **EOF** | **Offsite Response Agencies** | Readings on **FC RE 385** reflect a steadily increasing trend projected doses now exceed PAGs out to 5 miles requiring an extension of PARs to evacuation 5 miles around and 10 miles downwind. |
| T+300 (1145) | | **EOF** | **Offsite Response Agencies** | Meteorological data change, and a wind shift occurs. Wind is now from approximately 280° adding **sector G** to the PARs. PARs are now evacuate 5 miles around and 10 miles downwind **sectors C, D, E, F, & G.** |
| T+320 (1205) | | | | E-Team Members are able to open ABHV006, the steam supply to the TDAFP from "C" S/G and eliminate the "B" S/G as the only source of steam to the TDAFP. |
| T+325 (1210) | | | | When the designed objectives have been demonstrated / completed in the facilities the drill may be terminated and the critique process started. |

# APPENDIX 5

# PLANNING ISSUES

1. Callaway County/Fulton Emergency Operations Center

ISSUE NO.: 010-07-1e1-P-05

CONDITION: Three health physics instrumentation kits located at the Callaway/Fulton EOC were not available for inspection.

Instrumention kits have some or all of the following equipment:

1 - CDV-715 Survey meter (0-500R/hr)
1 - CDV-700 with Pancake Decontamination Survey meter (0-50mR/hr)
1 - CDV-725 Dosimeters (0-5R) - or equivalent
1 – Optically Stimulated Luminescence (OSL's) Dosimeter or Thermoluminescent Dosimeter (TLD)
1 - CDV-750 Dosimeter charger
1 - CDV-742 Dosimeters (0-200R) or CDV-730 Dosimeters (0-20 R) or CDV-740 Dosimeters (0-100R)

POSSIBLE CAUSE: Lack of coordination between Callaway/Fulton EOC and the State regarding instrumentation needs as the result of the termination of the county's Emergency Management Director in the two weeks preceding the exercise. The previous director mistakenly returned the equipment to the state, and the interim director failed to note its absence.

REFERENCE: NUREG 0654 H.7, 10

EFFECT: Lack of the ability to detect contamination within the EOC, on samples, and on responding personnel.

CORRECTIVE ACTION DEMONSTRATED: Make these kits available for inspection or locate and relay this information to the Region VII site specialist.

The State Emergency Management Agency (SEMA) transported the 3 kits to the Callaway County EOC on August 9, 2007, and their presence and

operability were confirmed by the Callaway Site Specialist that morning. They are now available in the EOC for the county's use. Therefore this issue has been corrected and is closed.

2. EAS Station - KTXY

ISSUE NO.: 010-07-5a1-P-04

CONDITION: The EAS station was using an outdated procedure that did not allow for messages to be broadcast live while being recorded. The procedure specifically stated that all messages would be read off-line and recorded, than verified, prior to activating the EAS and transmitting the message. The General Emergency messages at 1037 and 1259 were instead broadcast live while being recorded, which is in accordance with the newest procedures.

POSSIBLE CAUSE: The EAS station failed to update their procedures.

REFERENCE: (10 CFR Part 50, Appendix E & NUREG-0654, E.1.,4.,5.,6.,7.)

EFFECT: This is a planning issue, as the EAS station demonstrated correct procedures.

CORRECTIVE ACTION DEMONSTRATED: The EAS station provided a current procedure on the day following the exercise.