



Callaway Nuclear Power Plant

After Action Report/ Improvement Plan

Drill Date - November 09, 2010

Radiological Emergency Preparedness (REP) Program



FEMA

Published December 03, 2010

Unclassified

Radiological Emergency Preparedness Program (REP)

After Action Report/Improvement Plan

Callaway Nuclear Power Plant

This page is intentionally blank.

Callaway Nuclear Power Plant After Action Report/Improvement Plan

Published December 03, 2010

Contents

Executive Summary	3
Section 1: Exercise Overview	4
1.1 Exercise Details	4
1.2 Exercise Planning Team Leadership	4
1.3 Participating Organizations	6
Section 2: Exercise Design Summary	7
2.1 Exercise Purpose and Design	7
2.2 Exercise Objectives, Capabilities and Activities	8
2.3 Scenario Summary	9
Section 3: Analysis of Capabilities	10
3.1 Drill Evaluation and Results	10
3.2 Summary Results of Drill Evaluation	10
3.3 Criteria Evaluation Summaries	12
3.3.1 Support Jurisdictions	12
3.3.1.1 University of Missouri Hospital and Clinics	12
3.3.1.2 University of Missouri Health Care Ambulance Service	12
Section 4: Conclusion	14
Appendix A: Drill Evaluators and Team Leaders	15
Appendix B: Acronyms and Abbreviations	16

This page is intentionally blank.

EXECUTIVE SUMMARY

On November 9, 2010, the Federal Emergency Management Agency (FEMA), Region VII, evaluated a medical services drill for the University of Missouri Hospital and Clinics, and the University of Missouri Health Care Ambulance Service. The purpose of the medical services drill was to assess the ability of the hospital and its associated ambulance service to respond to a radiological emergency involving a simulated medical injury to a member of the public with radioactive contamination. This drill was held in accordance with FEMA's policies and guidance concerning the exercise of State and local radiological emergency response plans and procedures.

The previous medical services drill at this site was conducted on September 10, 2008. The qualifying emergency preparedness exercise for this Power Plant was conducted on March 21, 1984.

FEMA wishes to acknowledge the efforts of the staffs of the University of Missouri Hospital and Clinics, the University of Missouri Health Care Ambulance Service and Missouri's State Emergency Management Agency (SEMA) who participated in this drill. The efforts of the state should also be commended for their work on training and drill preparation.

Protecting the public health and safety is the full-time job of some of the medical drill 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. A special thank you is once again extended to those wonderful volunteers. Cooperation and teamwork of all the participants were evident during this drill.

The University of Missouri Hospital and Clinics and the University of Missouri Health Care Ambulance Service demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There were no Deficiencies or Areas Requiring Corrective Action (ARCAs) identified as a result of this medical drill. There were no previous ARCAs to be corrected during this medical drill from 2008.

SECTION 1: EXERCISE OVERVIEW

1.1 Exercise Details

Exercise Name

Callaway Nuclear Power Plant

Type of Exercise

Drill

Exercise Date

November 09, 2010

Program

Department of Homeland Security/FEMA Radiological Emergency Preparedness Program

Scenario Type

Radiological Emergency

1.2 Exercise Planning Team Leadership

Judy Dodgen

Site Specialist

Federal Emergency Management Agency /US Dept of Homeland Security

Technological Hazards Program Specialist

9221 Ward Parkway

Suite 300

Kansas City, Missouri, 64114

816-283-7091

judy.dodgen@dhs.gov

Tom Mohr

Controller-Communications

State Emergency Management Agency (SEMA)

SEMA REP Program Manager (Callaway/Cooper)

2302 Militia Drive
P.O. Box 116
Jefferson City, Missouri, 65102
573-526-9245
tom.mohr@sema.dps.mo.gov

Vince Miller
Utility Representative
Ameren UE - Callaway Nuclear Power Plant
Emergency Response Coordinator, Offsite
P.O. Box 620
Fulton, Missouri, 65251
573-676-8985
vmiller@ameren.com

Keith Henke
Controller-Radiological Emergency Area
Missouri Dept. of Health and Senior Services
Radiological Planner
P.O.Box 570
Jefferson City, Missouri, 65102
573-751-6112
keith.henke@dhss.mo.gov

James Kammerer
Controller-Ambulance
State Emergency Management Agency
Radiological Systems Maintenance Supervisor
2302 Militia Drive
Jefferson City, Missouri, 65102
573-526-9264
jim.kammerer@sema.dps.mo.gov

Jeff Rackers
Controller-On-scene Control
SEMA
Radiological Systems Maintenance Technician
2302 Militia Drive
Jefferson City, Missouri, 65102
573-526-9257
jeff.rackers@sema.dps.mo.gov

Darrell Chute
Observer -On-scene
SEMA
REP Planning/Training
2302 Militia Drive
Jefferson City, Missouri, 65102
573-526-9139
darrell.chute@sema.dps.mo.gov

1.3 Participating Organizations

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

State Jurisdictions

University of Missouri Hospital and Clinics
University of Missouri Health Care Ambulance Service
State of Missouri Emergency Management Agency (SEMA)
Missouri Dept. of Health and Senior Services

SECTION 2: EXERCISE DESIGN SUMMARY

2.1 Exercise Purpose and Design

The purpose of the Medical Service drill conducted in association with the Callaway Nuclear Power Plant (CNPP) was to demonstrate the adequacy of the University of Missouri Hospital and Clinics and the University of Missouri Health Care Ambulance Service emergency plans, associated implementing procedures, facilities, and equipment of the emergency responders and supporting entities in the communities in the immediate vicinity of the CNPP, specifically within the 10-mile emergency planning zone (EPZ).

Further, this drill was to test the CNPP emergency response community's ability to assess and respond to emergency conditions and coordinate efforts with other agencies for protection of the health and safety of the public.

The conduct and evaluation of this drill provides additional training for emergency response organization personnel as a means to enhance CNPP emergency response capability. The purpose of this particular medical services drill was to activate and evaluate portions of the University of Missouri Hospital and Clinics and the University of Missouri Health Care Ambulance Service Emergency Plans, and associated implementing procedures, in accordance with 44 CFR 350.

The scenario for the medical service drill was developed by SEMA, then was reviewed and approved for use by FEMA Region 7. The scenario was utilized by the exercise controllers and evaluators as the control mechanism for the conduct of the drill.

The scenario for the drill at the University of Missouri Hospital and Clinics was designed to depict a simulated vehicle accident in which a woman was injured and potentially contaminated. The University of Missouri Health Care Ambulance Service responded to the accident scene and followed their procedures for handling a contaminated injury, and transported the victim to the University of Missouri Hospital and Clinics. The University of Missouri Hospital and Clinics established a Radiological Emergency Area (REA), treated the injury, and decontaminated the victim.

The scenario design provided the basis to observe and evaluate the capabilities and effectiveness of the Emergency Response Plans for the University of Missouri Hospital and Clinics and the

University of Missouri Health Care Ambulance Service.

2.2 Exercise Objectives, Capabilities and Activities

The Callaway Nuclear Power Plant (CNPP) Emergency Preparedness Exercise & Drill Program objectives are based on the Federal requirements delineated in 44 CFR 350, as well as on the priorities and procedures detailed in the Radiological Emergency Preparedness plans for the State of Missouri, University of Missouri Hospital and Clinics and University of Missouri Health Care Ambulance Service. Additional guidance provided in NUREG-0654, NUREG-0696, and NUREG-0737, was utilized in developing these objectives.

The objective of this medical services drill was to test the implementation of the plans and procedures of the participating agencies, and the capability of these agencies to conduct operations in accordance with these plans. This objective is further defined by the criteria evaluated for each participant. These criteria are listed in Table 3.1.

The medical services drill was designed to allow the University of Missouri Hospital and Clinics and University of Missouri Health Care Ambulance Service to demonstrate the ability to initiate, maintain, and show control and treatment of contamination in patients, and illustrate the adequacy of emergency vehicles, equipment and personnel for transporting and treating contaminated patients. Both the ambulance service and the hospital were evaluated based upon the plans and procedures which they have established for use in a radiological emergency.

This drill was performed out-of-sequence, which is not concurrent to a full scale exercise or in synchronized time with other sites. To compensate for the artificiality of an out-of-sequence drill, the activities for each evaluation accepted simulation of some tasks. This allowed for the evaluators to focus on the activities specified in the drill criteria, which are usually those least familiar to the exercise players. None of the simulations compromised the ability to demonstrate and evaluate the objective of the drill.

2.3 Scenario Summary

The scenario utilized for the University of Missouri Hospital and Clinics and the University of Missouri Health Care Ambulance Service medical services drill stemmed from a female hunter in the conservation area south of the Callaway Plant who heard the plant sirens and GENERAL EMERGENCY announcement. The female had to hike out from her stand and was injured while evacuating the EPZ. The injury occurred while she was driving to exit the area.

Accident Scene:

The accident occurred in rural Callaway County due south of the plant at the intersection of County Road 459 and County Road 468. While avoiding a deer in the road, the car swerved off the road, impacted a sign and went nose first into the ditch and rolled onto it's roof.

All Callaway Ambulances had previously been dispatched to a multi-car accident on I-70 at the 153 mile marker, resulting in mutual aid assistance from the University of Missouri Hospital and Clinics for the plant response.

SECTION 3: ANALYSIS OF CAPABILITIES

3.1 Drill Evaluation and Results

Contained in this section are the results and findings of the evaluation of all jurisdictions and functional entities, which participated in the November 9, 2010, out of sequence medical service drill. The drill event tested the offsite emergency response capability of the hospital and its associated ambulance service to respond to a radiological emergency, involving a simulated medical injury to a member of the public with radioactive contamination.

Each jurisdiction and functional entity was evaluated on the basis of its demonstration of criteria contained in exercise evaluation areas delineated in Emergency Preparedness: Exercise Evaluation Methodology as printed in the Federal Register September 12, 2001 and April 25, 2002.

3.2 Summary Results of Drill Evaluation

The matrix presented in Table 3.1, on the following pages, presents the status of all exercise criteria, which were scheduled for demonstration during this medical service drill, 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 Requiring Corrective Action (ARCA) assessed or unresolved ARCA(s) from prior exercises)

N - Not Demonstrated (Reason explained in subsection B)

Table 3.1 - Summary of Drill Evaluation

DATE: 2010-11-09 SITE: Callaway Nuclear Power Plant, MO M: Met, A: ARCA, D: Deficiency, P: Plan Issue, N: Not Demonstrated		Univ. of MO Hosp.	Univ. of MO Amb.
Emergency Operations Management			
Mobilization	1a1		
Facilities	1b1		
Direction and Control	1c1		
Communications Equipment	1d1		
Equip & Supplies to support operations	1e1	M	M
Protective Action Decision Making			
Emergency Worker Exposure Control	2a1		
Radiological Assessment and PARs	2b1		
Decisions for the Plume Phase -PADs	2b2		
PADs for protection of special populations	2c1		
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
Implementation of KI decision	3b1		M
Implementation of protective actions for special populations - EOCs	3c1		
Implementation of protective actions for Schools	3c2		
Implementation of traffic and access control	3d1		
Impediments to evacuation are identified and resolved	3d2		
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		
Activation of the prompt alert and notification system - Fast Breaker	5a2		
Activation of the prompt alert and notification system - Exception areas	5a3		
Emergency information and instructions for the public and the media	5b1		
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	M	M

3.3 Criteria Evaluation Summaries

3.3.1 Support Jurisdictions

3.3.1.1 University of Missouri Hospital and Clinics

These criteria were demonstrated by the University of Missouri Hospital and Clinics staff in Columbia, Missouri. The University of Missouri Hospital and Clinics staff were well trained and equipped to treat the patient's injuries and manage contamination. The University of Missouri Hospital and Clinics staff maintained a positive attitude and worked very effectively as a team, helping each other when the situation warranted.

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

3.3.1.2 University of Missouri Health Care Ambulance Service

These criteria were demonstrated by the University of Missouri Health Care Ambulance Service in Columbia, Missouri. The University of Missouri Health Care Ambulance Service team showed a high level of competence in both the treatment of patient injuries and management of contamination. The University of Missouri Health Care Ambulance Service team was well equipped and personnel demonstrated uses of material and methods needed to provide the appropriate patient care.

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. PLAN ISSUES: None

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

SECTION 4: CONCLUSION

Based on the results of the November 9, 2010, medical services drill, the offsite radiological emergency response plans and preparedness for the State of Missouri and the affected local jurisdictions are deemed adequate to provide reasonable assurance that appropriate measures can be taken to protect the health and safety of the public in the event of a radiological emergency. Therefore, 44 CFR Part 350 approval of the offsite radiological emergency response plans and preparedness for the State of Missouri, the University of Missouri Hospital and Clinics and the University of Missouri Health Care Ambulance Service, site-specific to the Callaway Nuclear Power Plant, will remain in effect.

APPENDIX A: DRILL EVALUATORS AND TEAM LEADERS

DATE: 2010-11-09, SITE: Callaway Nuclear Power Plant, MO

LOCATION	EVALUATOR	AGENCY
University of Missouri Hospital and Clinics	*Joe Schulte	FEMA VII
University of Missouri Health Care Ambulance Service	*Audie Canida	FEMA VII
* Team Leader		

APPENDIX B: ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
ARCA	Area Requiring Corrective Action
CNPP	Callaway Nuclear Power Plant
DHS	Department of Homeland Security
EPZ	Emergency Planning Zone
FEMA	Federal Emergency Management Agency
KI	Potassium Iodide
NUREG	Nuclear Regulatory Guidance
PAD	Protective Action Decision
PAR	Protective Action Recommendation
REA	Radiological Emergency Area
REP	Radiological Emergency Preparedness
SEMA	State Emergency Management Agency

This page is intentionally blank.