



FEMA

February 1, 2010

Mr. Paul Parmenter, Director
Missouri State Emergency Management Agency
2302 Militia Drive
P.O. Box 116
Jefferson City, Missouri 65102

Re: Transmittal of the Final Plume and Ingestion Pathway Evaluation report for the Callaway Nuclear Power Plant exercise conducted on October 20 and 21, 2009, the out-of-sequence drills conducted during August and October 2009, and the remedial exercise conducted on January 26, 2010.

Dear Mr. Parmenter:

Enclosed is a copy of the subject report for the 2009 Callaway Nuclear Power Plant exercise and drills, and the 2010 remedial exercise.

During the October 20, 2009, exercise there was one Deficiency and one Area Requiring Corrective Action (ARCA) identified. The ARCA was corrected on the spot following additional training. During the January 26, 2010, remedial exercise, the Deficiency was adequately corrected by re-demonstration and is now closed.

Should you have any questions or concerns regarding this matter, please contact Ron McCabe at (816) 283-7007 or Judy Dodgen at (816) 283-7091.

Sincerely,

Beth Freeman
Regional Administrator

Enclosure

cc: Vanessa Quinn & Lisa Banks Robinson, FEMA Headquarters REP w/o enclosure
Bill Maier, NRC Region IV w/o enclosure
Kevin Bruckerhoff, Callaway Nuclear Power Plant w/o enclosure

AX45
NRC



FEMA

February 2, 2010

Elmo E. Collins,
Regional Administrator
U.S. Nuclear Regulatory Commission, Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, Texas 76011-4005

Dear Mr. Collins:

Enclosed is a copy of the final report for the October 20 and 21, 2009, plume and ingestion pathway exercise, and the out-of-sequence drills conducted during August and October 2009, and the January 26, 2010, remedial exercise of the offsite radiological emergency response plans site-specific to the Callaway Nuclear Power Plant. The state of Missouri and its counties of Callaway, Montgomery, Gasconade, and Osage participated during the exercises and drills. The report was prepared by the Federal Emergency Management Agency (FEMA) Region VII staff. Copies of the final report will be provided to the state of Missouri.

There was one Deficiency and one Area Requiring Corrective Action (ARCA) identified. The ARCA was corrected on-the-spot following additional training during the October 20, 2009, exercise. During the January 26, 2010, remedial exercise, the Deficiency was adequately corrected by re-demonstration and is now closed. Based on the results of the exercise and the remedial exercise, the offsite radiological emergency response plans and preparedness for the state of Missouri and affected local jurisdictions site-specific to the Callaway Nuclear Power Plant, can be implemented and are adequate to provide reasonable assurance appropriate measures can be taken offsite to protect the health and safety of the public in the event of a radiological emergency at the site. Therefore, the Title 44 CFR, Part 350, approval of the offsite radiological emergency response plans and preparedness for the state of Missouri, site-specific to the Callaway Nuclear Power Plant, granted on March 21, 1987, will remain in effect.

Should you have any questions or concerns regarding the report, please contact Judy Dodgen at (816) 283-7091.

Sincerely,

Beth Freeman
Regional Administrator

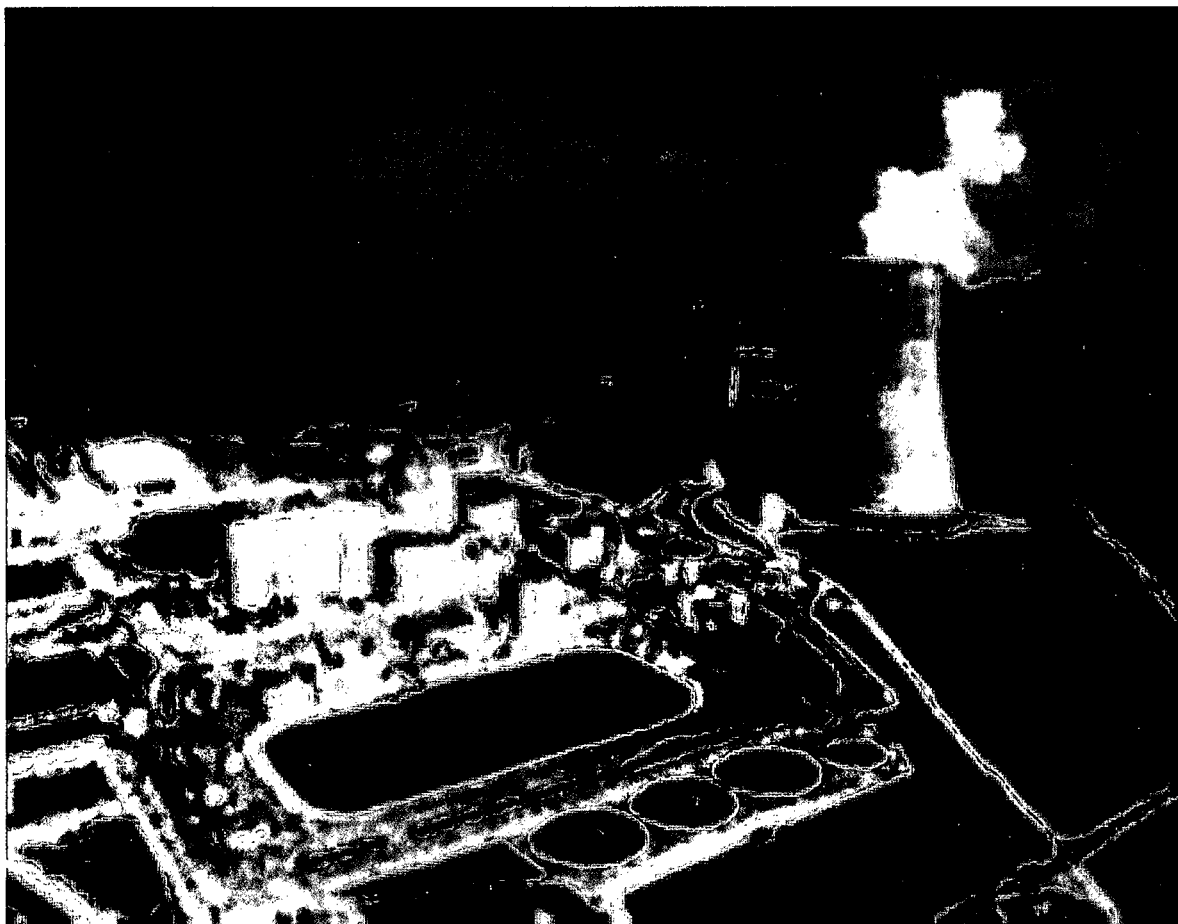
Enclosure

cc: Vanessa Quinn & Lisa Banks Robinson, FEMA Headquarters REP w/o enclosure
Bill Maier, NRC Region IV w/o enclosure
NRC HQ, Document Control Desk w/enclosure
Lisa .Gibney@NRC.gov – electronic report

Callaway Nuclear Power Plant
Exercise Report - 2009-10-20
Final Report - Radiological Emergency
Preparedness (REP) Program
2010-02-01



FEMA





FEMA

Exercise Report

Callaway Nuclear Power Plant

Exercise Date: 2009-10-20

Report Date: 2010-02-01

U.S. DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

REP Program

9221 Ward Parkway, Suite 300

Kansas City, MO 64114

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1. Executive Summary

On October 20 and 21, 2009, the Department of Homeland Security (DHS)/Federal Emergency Management Agency (FEMA), Region VII, conducted a plume and ingestion pathway exercise in the area around the Callaway Nuclear Power Plant. In addition, out-of-sequence drills were conducted for the Callaway Community Hospital, Callaway County Ambulance Service, Jason and Soldiers Halls Reception and Care Center, Montgomery County R-II Reception and Care Center, on August 17 and 18, 2009. On October 19 and 23, 2009, additional out-of-sequence drills were conducted for Ashbury Heights, Bristol Manor, Fulton Manor, Fulton State School and Hospital, Fulton Reception and Diagnostic Center, Fulton Public Schools, and St. Peter Parochial School. Further, a remedial exercise was conducted on January 26, 2010. The purpose of the exercise and drills was to assess the level of State and local preparedness in responding to a radiological emergency. The exercise, drills, and remedial exercise were held in accordance with FEMA's policies and guidance concerning the exercise of State and local radiological emergency response plans and procedures.

The previous exercise at this site was conducted on August 8, 2007. 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 and ingestion pathway exercise and the out of sequence drills.

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 was one Deficiency and one Area Requiring Corrective Action (ARCA) identified, as a result of this exercise. The ARCA was corrected on the spot following additional training. The Deficiency was corrected during the remedial exercise conducted on January 26, 2010 and is now closed.

The final protective action decision (PAD) was the evacuation of Subareas C1, C2, and C3. Approximately 1,617 residents and transients were evacuated (simulated).

During the post plume phase of the exercise four major actions were taken. A portion of Subarea C8, which contains an approximate total of 1,729 residents and special facilities, was relocated. The re-entry into portions of Subareas C1, C2, C3, C8 and the return of all subarea C3, and a portion of subarea C2, was accomplished. In addition, an Embargo was established for crops and livestock.

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 FEMA Region VII, by the state of Missouri and involved local jurisdictions on May 21, 1984, 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 Plume and Ingestion Pathway Exercise was evaluated on October 20 and 21, 2009. Out-of-sequence drills were evaluated on August 17 and 18, October 19 and 23, 2009, and the Remedial Exercise conducted on January 26, 2010, by FEMA Region VII. The exercise and drills were 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 and drills report is to present the exercise and drill results and findings on the performance of the offsite response organizations (OROs) during a simulated radiological emergency.

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

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.

Chapter 3 of this report, titled "Exercise Overview," presents basic information and data relevant to the exercise. This chapter of the report contains a description of the plume EPZ, the ingestion pathway IPZ, 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.

Chapter 4 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 chapter also contains: (1) description of all Deficiencies and ARCAs assessed during this exercise, recommended corrective actions, and the State and local governments' Schedule of Corrective Actions for each identified exercise issue and (2) descriptions of ARCAs assessed during previous exercises, if any, and the status of the OROs' efforts to resolve them.

3. Exercise Overview

Contained in this chapter are data and basic information relevant to the October 20 and 21, 2009, exercise and related out-of-sequence drills evaluated on August 17 and 18, 2009, October 19 and 23, 2009, and remedial exercise on January 26, 2010, to test the offsite emergency response capabilities in the area surrounding the Callaway Nuclear Power Plant. This chapter of the exercise report includes a description of the Plume Emergency Planning Zone (EPZ), and the Ingestion Planning Zone (IPZ), 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.

The 50-mile Ingestion Emergency Planning Zone (IPZ) is located entirely within the state of Missouri and includes, in addition to the EPZ counties, the following counties: Audrain, Boone, Cole, Cooper, Howard, Franklin, Monroe, Ralls, Pike, Lincoln, St. Charles, Warren, Crawford, Maries, Miller, Moniteau, and Randolph. The majority of land with the 50-mile IPZ is used for agricultural purposes.

3.2. Exercise Participants

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

State Jurisdictions

- Missouri Department of Social Services, Family Services Division
- Missouri Department of Agriculture
- Missouri Department of Conservation
- Missouri State Public Information Officer
- Missouri Information Analysis Center
- Missouri Department of Health and Senior Services
- Missouri Department of Natural Resources
- Missouri Department of Public Safety
- Missouri Department of Transportation
- University of Missouri Research Reactor
- Missouri State Emergency Management Agency
- Missouri State Highway Patrol
- Missouri State Water Patrol
- EAS Radio Station - KTXV
- University of Missouri Radiation Safety
- Missouri National Guard
- Missouri Public Service Commission
- Missouri Department of Insurance
- Missouri Environmental Health and Safety

Risk Jurisdictions

- Callaway Community Hospital
- Callaway County 911 Dispatch Center
- Callaway County Commissioners
- Callaway County Emergency Management Agency
- Callaway County Family Services
- Callaway County Public Health
- Callaway County Fire Department
- Callaway County Jail
- Callaway County Sheriff Department
- Callaway County Transportation Officer
- St. Peter Parochial School

Callaway County Public Works
Callaway County Ambulance Service
Ashbury Heights Administrator
Bristol Manor Administrator
Fulton City Engineer
Fulton Manor
Fulton Reception and Diagnostic Center
Fulton State School and Hospital
Fulton Police Department
Callaway County Ambulance
Callaway County EOC Support Staff
Callaway County Human Services
Callaway County Public Information Officer
Callaway County Road and Bridge Department
St Peter Roman Catholic Church
Gasconade County 911
Gasconade County Clerk
Gasconade County Commissioners
Gasconade County Div. of Family Services
Gasconade County Emergency Management Agency
Gasconade County EMS/Fire
Gasconade County Health Department
Gasconade County of Transportation
Gasconade County Public Information Officer
Gasconade County Road and Bridge
Gasconade County Sheriff
Hermann County Hospital
Montgomery County Fire Department
Montgomery City/Rural Fire Department
Montgomery County Clerk
Montgomery County Commissioners
Montgomery County Emergency Management Director
Montgomery County R-II Reception and Care Center
Montgomery County EMS
Montgomery County Health Department
Montgomery County R-II School District
Montgomery County Road and Bridge

Montgomery County Sheriff's Department
Montgomery City Police/Emergency Management
Osage County Commissioners
Osage County Emergency Management Director
Osage County Ham Radio Operators
Osage County Health Department
Osage County Highway Department
Osage County R-I School District
Osage County Road And Bridge Department
Osage County Sheriff's Department
Osage County Special Services
Osage County Transportation Officer
Osage County Veterinary Services
Osage County Emergency Medical Services
Osage County Public Information Officer
Linn Fire Department
Support Jurisdictions
 Jason and Soldiers Halls Reception and Care Center
Private Jurisdictions
 Ameren
 American Red Cross
Federal Jurisdictions
 Federal Emergency Management Agency
 Nuclear Regulatory Commission (NRC)
 Food and Drug Administration
 Centers for Disease Control and Prevention
 Department of Energy

3.3. Exercise Timeline

Table 1 on the following pages, 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.

NOTE: The following information is provided to explain why two figures are provided for the participants receipt time of the radiological release.:

There were no plant monitors operating to give a start of release time from within the

plant.

Missouri Department of Health and Human Services (MO DHHS), performing dose assessment and field team coordination at the Emergency Operating Facility (EOF) logged the time of start of release as 1047. This is the time in which they were notified that a field team at the exclusion area boundary (EAB) was detecting above background readings (5 mR/hr). This is the time they used to begin calculating when the plume would reach the location where their other field teams were assigned to monitor.

The field team reading which they recorded were (1) 1047 - 5 mR/hr at EAB; (2) 1110 - 855 mR/hr at EAB; (3) 1158 - 3 mR/hr at 7 miles out.

The utility dose assessment staff performed dose calculations based on these field team measurements. At 1119 their calculations indicated 1 R TEDE dose at EAB. Because this was the dose that would exceed PAGs, they set their "time of start of release" at 1119, even though a release above background had been detected since 1047. The MO DHSS discussed this discrepancy and determined that the actual time of start of release they would work from was the 1047 time, because this is when they began tracking exposure to their field team member to ensure they were as low as reasonably achievable (ALARA).

The KI time difference of 0809 and 0810 for Field Teams A & B is due to simulated ingestion of KI before being dispatched.

Table 1 - Exercise Timeline
DATE: 2009-10-20, 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 IJC | MO Forward Command Post/EOF |
|--|-----------------------|----------------------------------|------------------------|--|--|--------|-----------------------------|
| Unusual Event | 0715 | 0723 | 0726 | 0740 | 0738 | 0746 | 0719 |
| Alert | 0752 | 0801 | 0800 | 0810 | 0804 | 0758 | 0754 |
| Site Area Emergency | 0922 | 0932 | 0924 | 0932 | 0929 | 0934 | 0924 |
| General Emergency | 1122 | 1135 | 1123 | 1125 | 1127 | 1133 | 1123 |
| Simulated Rad. Release Started | 1119 | 1051 | 1047 | 1050 | 1050 | 1206 | 1119 |
| Simulated Rad. Release Terminated | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Facility Declared Operational | | 0822 | 0818 | 0840 | - | 0840 | 0913 |
| Governor Declared of State of Emergency | | 0832 | N/A | N/A | - | - | N/A |
| Exercise Terminated | | 1234 | 1226 | 1232 | 1232 | 1234 | 1226 |
| Dairy Animals on Covered Feed/Water | | 0932 | 0929 | - | - | 0930 | 0929 |
| 1st Protective Action Decision: Initial, Animal Protection, Rumor Control | | 0947 | 0929 | - | - | - | 1126 |
| 1st Siren Activation | | 0950 | N/A | - | - | 0950 | N/A |
| 1st EAS Message | | 0952 | N/A | - | - | 0953 | N/A |
| 2nd Protective Action Decision: Evac Subareas C1, C2 and C3 | | 1147 | 1126 | - | - | - | 1144 |
| 2nd Siren Activation | | 1152 | N/A | - | - | 1156 | - |
| 2nd EAS Message | | 1159 | N/A | - | - | 1159 | - |
| KI to Emergency Workers in the EPZ | | 1147 | 1144 | 0810 simulated ingestion of KI before being dispatched | 0809 simulated ingestion of KI before being dispatched | 1206 | 1144 |
| DAY 2 POST PLUME PHASE ACTIONS | | | | | | | |
| Relocation of a portion of Subarea C8 (Simulated date: October 21, 2009) | | 0925/1155 press release | N/A | N/A | N/A | N/A | N/A |
| Re-entry into portions of Subareas C1, C2, C3, and C8 (Simulated date: October 21, 2009) | | 1220 press release | N/A | N/A | N/A | N/A | N/A |
| Return of all of Subarea C3, and portions of Subarea C2 (Simulated date: October 22, 2009) | | press release time not available | N/A | N/A | N/A | N/A | N/A |
| Agricultural Embargo (Simulated date: October 25, 2009) | | 1447 press release | N/A | N/A | N/A | N/A | N/A |

Table 1 - Exercise Timeline
DATE: 2009-10-20, SITE: Callaway Nuclear Power Plant, MO

| Emergency Classification Level or Event | Time Utility Declared | EAS Station - KTTY | Callaway County/Fulton EOC | Gasconade County EOC | Montgomery County EOC | Osage County EOC |
|--|-----------------------|--------------------|----------------------------------|----------------------|-----------------------|------------------|
| Unusual Event | 0715 | N/A | 0723 | 0723 | 0724 | 0722 |
| Alert | 0752 | 0808 | 0800 | 0759 | 0759 | 0758 |
| Site Area Emergency | 0922 | 0950 | 0930 | 0929 | 0929 | 0926 |
| General Emergency | 1122 | 1158 | 1134 | 1133 | 1133 | 1130 |
| Simulated Rad. Release Started | 1119 | - | 1134 | 1133 | 1133 | 1130 |
| Simulated Rad. Release Terminated | N/A | N/A | N/A | N/A | N/A | N/A |
| Facility Declared Operational | | - | 0830 | 0800 | 0845 | 0810 |
| Governor Declared of State of Emergency | | - | 0830 | - | - | 0830 |
| Exercise Terminated | | 1236 | 1229 | 1232 | 1228 | 1232 |
| Dairy Animals on Covered Feed/Water | | - | 0943 | 0937 | 0944 | 0943 |
| 1st Protective Action Decision: Initial, Animal Protection, Rumor Control | | 0950 | 0943 | 0937 | - | 0936 |
| 1st Siren Activation | | - | 0950 | - | - | - |
| 1st EAS Message | | 0955 | N/A | 0950 | - | 0943 |
| 2nd Protective Action Decision: Evac Subareas C1, C2 and C3 | | 1158 | 1142 | 1133 | - | 1135 |
| 2nd Siren Activation | | - | 1157 | - | - | - |
| 2nd EAS Message | | 1210 | N/A | - | - | 1136 |
| KI to Emergency Workers in the EPZ | | - | 1140 | 1142 | 1150 | 1207 |
| DAY 2 POST PLUME PHASE ACTIONS | | | | | | |
| Relocation of a portion of Subarea C8 (Simulated date: October 21, 2009) | | N/A | 0925/1155 press release | N/A | N/A | N/A |
| Re-entry into portions of Subareas C1, C2, C3, and C8 (Simulated date: October 21, 2009) | | N/A | 1220 press release | N/A | N/A | N/A |
| Return of all of Subarea C3, and portions of Subarea C2 (Simulated date: October 22, 2009) | | N/A | press release time not available | N/A | N/A | N/A |
| Agricultural Embargo (Simulated date: October 25, 2009) | | N/A | 1447 press release | N/A | N/A | N/A |

4. Exercise Evaluation and Results

Contained in this chapter are the results and findings of evaluation of all jurisdictions and functional entities that participated in the August 17 and 18, 2009, and October 19 and 23, 2009, out-of-sequence drills and the October 20 and 21, exercise and ingestion pathway, and the January 26, 2010, remedial 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 Emergency Preparedness Exercise Evaluation Methodology, as published in the Federal Register, September 12, 2001, and April 25, 2002. Detailed information on the exercise criteria and the extent-of-play agreement for this exercise is found in Appendix 2 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 ARCA(s) assessed and no unresolved ARCA(s) from prior exercises)

D - Deficiency assessed

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

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

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

Table 2 - Summary of Exercise Evaluation (2 pages)

| DATE: 2009-10-20 SITE: Callaway Nuclear Power Plant, MO A: ARCA, D: Deficiency, M: Met, N: Not Demonstrated | | MO State EOC | MO Dose Assessment/FTC | Missouri Field Team A | Missouri Field Team B | Missouri Ingestion Teams | MO JIC | MO Forward Command Post/EOF | EAS Station - KTXV | Fulton Recep. Diagnostic Center | Fulton State Hospital | Jason & Solders Halls RCC | Univ. of MO Nuclear Laboratory | Callaway County/Fulton EOC |
|---|-----|--------------|------------------------|-----------------------|-----------------------|--------------------------|--------|-----------------------------|--------------------|---------------------------------|-----------------------|---------------------------|--------------------------------|----------------------------|
| Emergency Operations Management | | | | | | | | | | | | | | |
| Mobilization | 1a1 | M | M | M | M | M | M | M | | | | M | | M |
| Facilities | 1b1 | | M | | | | | | | | | M | | |
| Direction and Control | 1c1 | M | | | | | | M | | M | | M | | M |
| Communications Equipment | 1d1 | M | M | M | M | M | M | M | | M | | M | | M |
| Equip & Supplies to support operations | 1e1 | M | 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 | | M | | | | | 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 | M | M | | | | | M | | | | | | |
| Rad Assessment and Decision making concerning Relocation, Reentry, and Return | 2e1 | M | M | | | | | M | | | | | | |
| Protective Action Implementation | | | | | | | | | | | | | | |
| Implementation of emergency worker exposure control | 3a1 | | M | 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 |
| Implementation of protective actions for Schools | 3c2 | | | | | | | | | | | | | 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 | M | | | | | | | | | | | | |
| Materials for Ingestion Pathway PADs are available | 3e2 | M | | | | | | | | | | | | |
| Implementation of relocation, re-entry, and return decisions. | 3f1 | M | | | | | | M | | | | | | M |
| 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 | | | | | M | | | | | | | | |
| Laboratory operations | 4c1 | | | | | | | | | | | | M | |
| 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 | | | | | M |
| Support Operations/Facilities | | | | | | | | | | | | | | |
| Mon / decon of evacuees and emergency workers, and registration of evacuees | 6a1 | | | | | | | | | M | M | M | | |
| Mon / decon of emergency worker equipment | 6b1 | | | | | | | | | | | M | | |
| Temporary care of evacuees | 6c1 | | | | | | | | | | | | | |
| Transportation and treatment of contaminated injured individuals | 6d1 | | | | | | | | | | | | | |

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

| DATE: 2009-10-20 SITE: Callaway Nuclear Power Plant, MO A: ARCA, D: Deficiency, M: Met, N: Not Demonstrated | | Fulton School Dist. # 58 | St Peter Parochial School | Callaway Hosp.-Sheltering | Fulton Manor Nursing | Callaway Hospital | Callaway County Amb. | Ashbury Heights of Fulton | Bristol Manor of Fulton | Gasconade County EOC | Montgomery County EOC | Montgomery R-II Schools | Montgomery Recep. Center | Osage County EOC |
|---|-----|--------------------------|---------------------------|---------------------------|----------------------|-------------------|----------------------|---------------------------|-------------------------|----------------------|-----------------------|-------------------------|--------------------------|------------------|
| Emergency Operations Management | | | | | | | | | | | | | | |
| Mobilization | 1a1 | | | | | | | | | M | M | | M | M |
| Facilities | 1b1 | | | | | | | | | | | | | M |
| 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 | 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 | M | M | M | M |
| Implementation of KI decision | 3b1 | M | M | M | M | | M | M | M | M | M | M | | M |
| Implementation of protective actions for special populations - EOCs | 3c1 | | | M | M | | | M | M | M | M | | | M |
| Implementation of protective actions for Schools | 3e2 | 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 | | | | | | | | | M | M | | | M |
| 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 | | | | | | | | | 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 section 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 section 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. Missouri Jurisdictions

4.2.1.1. Missouri State Emergency Operations Center

- a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.d.1, 2.e.1, 3.d.1, 3.e.1, 3.e.2, 3.f.1, 5.a.1, 5.b.1.
- b. AREAS REQUIRING CORRECTIVE ACTION: 3.d.1.

ISSUE NO.: 10-09-3d1-A-01

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

CONDITION: The State Emergency Management Agency delayed contacting the FAA to request the closing of commercial air traffic near the Callaway plant.

POSSIBLE CAUSE: Failure to follow Site Area Emergency Checklist procedure.

REFERENCE: NUREG-0654,J.10.j

EFFECT: Failure to control all air traffic in the affected areas could result in unnecessary radiation exposure to pilots and passengers traveling in such areas.

CORRECTIVE ACTION DEMONSTRATED: At 1045 the SEMA Operations Officer directed a SEMA staff responder to execute the Site Area Emergency Checklist and the FAA was simulated to be contacted to close traffic shortly thereafter. Based on the above, this issue is now closed.

- c. DEFICIENCY: 5.b.1.

ISSUE NO.: 10-09-5b1-D-02

CRITERION: 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)

CONDITION: The State Emergency Operations Center (EOC) failed to ensure that the public was notified, in a timely manner, of the need for the

evacuation of subareas C1, C2, and C3 in Callaway County, Missouri.

This failure was the result of four (4) interrelated causes: a delay between notification to the state by the plant and the decision to evacuate affected populations; an equipment failure within the State EOC; the decision to record the Emergency Alert System (EAS) message rather than to broadcast it simultaneously with its recording; and a failure by radio station personnel to recognize the urgency of the evacuation message and to broadcast it immediately.

The specific chronology of this issue is as follows:

At 1132, the Missouri State Emergency Operations Center (EOC) was notified that the Callaway Nuclear Power Plant had declared a General Emergency at 1122.

Eleven minutes later, at 1143, the Operations Officer of the State EOC entered an ongoing conference call involving the Forward Command Post/Emergency Operations Center and the EOCs in the counties of Osage, Gasconade, Callaway and Montgomery. The purpose of this conference call was to coordinate the county decisions in response to the utility's recommendation to evacuate Sectors P, Q and R (sub-areas C-1, C-2 and C-3) of the emergency planning zone in light of an ongoing release of radioactive materials from Callaway Nuclear Power Plant. This call was terminated at 1147 with all parties in agreement to evacuate the cited sub-areas.

At 1151, the Operations Officer advised the EOC control room to contact Callaway County to "sound sirens now."

Just prior to this time the State EOC staff assigned to operate the EAS messaging system, a computer-based "Digi-Cart" system, had assembled two stacks (or strings) of related, pre-recorded messages pertaining to this evacuation decision. In prior discussion with the Operations Officer and as the result of the need (prompted by a simulated earthquake and resultant damage to roadway infrastructure) to modify prescribed messages detailing evacuation routes, the agreed upon plan was to transmit "Stack One" to radio station KTXY (the primary EAS station), then inject live evacuation route

updates before transmitting "Stack Two".

This process was initiated between 1151 and 1152. The Digi-Cart system failed repeated attempts to transmit "Stack One". As a result, transmission of the multi-part message did not commence until the Digi-cart operated properly at 1159, and the full message package was not completely transmitted until 1203.

At this point, thirty-one (31) minutes had elapsed from the time the State EOC was advised of the General Emergency, and sixteen (16) minutes had elapsed from the time the decision was made to evacuate sub-areas C-1, C-2 and C-3 and advise the public of this decision through activation of the EAS system.

Broadcast of the EAS message at 1203, twelve (12) minutes after the sounding of the sirens was delayed further by a lack of clear communication to the EAS board operator at KTTY and/or a lack of clear, written procedures. Concurrent evaluation of the KTTY operation reveals that the KTTY board operator, previously instructed (at Site Area Emergency) to broadcast EAS messages every fifteen (15) minutes "until further notice", did not recognize the primacy of the evacuation message and waited, subsequently, four (4) additional minutes to broadcast the message at the pre-directed fifteen-minute interval despite the State EOC operator's request to "broadcast the message now."

As a result, the evacuation message was not transmitted to the public until thirty-five (35) minutes after the notification to the State EOC of the General Emergency classification, twenty (20) minutes after the decision was made to evacuate sub-areas C-1, C-2 and C-3 and sixteen (16) minutes after Callaway County was requested to sound the sirens.

This is not considered timely notification.

In all respects, the content of the messages were complete and accurate; however, provision of the information to the public was unduly delayed.

POSSIBLE CAUSE: There are four (4) probable causes for this issue:

1. Fifteen (15) minutes elapsed between notification to the State (and the counties) of the General Emergency and the conclusion of the coordination call between the State and county EOCs
2. Failure, for a period of 8 minutes, of the Digi-Cart messaging system at the State EOC
3. The decision to wait to broadcast the message until it was received 'in toto' by KTXY rather than broadcasting it 'live' and recording it for subsequent replay and,
4. Failure of the KTXY personnel to broadcast the message immediately.

REFERENCE: NUREG-0654, E.5., 7., G.3.a, G.4.a.b.c

EFFECT: The initial effect was untimely delayed delivery of evacuation information to the affected population of the emergency planning zone. The evacuation message was not transmitted to the public until thirty-five (35) minutes after the notification of the General Emergency and twenty (20) minutes after the decision to evacuate sub-areas C-1, C-2, and C-3. In addition, the sirens alerting the public were sounded sixteen (16) minutes prior to the broadcast of the evacuation message. This delay in the broadcast of evacuation information and the gap between the siren and the message, potentially placed persons within the Emergency Planning Zone at greater risk as they would not have been instructed to evacuate in a timely manner.

CORRECTIVE ACTION DEMONSTRATED: RECOMMENDATIONS:

1. This criterion must be re-demonstrated during a remedial exercise.
2. Efforts should be made to find ways to expedite coordination of decision-making between units of government having jurisdiction for protective actions. While complex situations can and do arise that require time for full consideration, a sense of urgency must be maintained.
3. The Digi-Cart system currently in use is proprietary in source, somewhat complex to operate and susceptible to undiagnosed failure, and it should be replaced with currently-available, supportable technology when funding

streams to permit replacement can be identified.

4. To expedite delivery of information, plans and procedures should be modified to permit KTTY to simultaneously record and broadcast EAS messages.
5. Written procedures for KTTY should be developed and used as the basis for training and subsequent EAS operation to avoid future uncertainty or confusion about message handling.

It is further recommended, in all instances to include both this issue and general operations, that a means of synchronizing clocks between the State EOC, the risk county EOCs, and KTTY for the purpose of efficiently coordinating and documenting activities be agreed upon and implemented.

CORRECTIVE ACTION DEMONSTRATED:

On January 26, 2010, the remedial exercise was conducted with participants at the State EOC, Callaway County EOC, and KTTY Radio Station, to demonstrate the ability to ensure that the public was notified, in a timely manner, of the need for the evacuation of subareas C1, C2, and C3 in Callaway County, Missouri.

The beginning of the remedial scenario was a briefing summary of events leading up to the General Emergency at the Callaway Nuclear Power Plant.

The State EOC and Callaway County EOC were notified by a Sentry notification at 1100 from the Callaway Nuclear Power Plant of a General Emergency.

The State proceeded to contact the Callaway County EOC at 1105 to discuss which protective actions were required and which pre-recorded EAS messages needed to be read and the time of the activation of the sirens.

The State loaded the concurred pre-recorded messages at 1106, using "Wind Amp" software, to be distributed to the radio station to read and record for rebroadcast. The "Wind Amp" software replaced the Digi-Cart system that the State had previously used.

When the State had the pre-recorded messages loaded and ready to transmit, they contacted the radio station at 1112, and informed them of the General Emergency, and to be ready to read and record the following message. The state had the radio station stay on an open line while they contacted Callaway County by the BURRS radio at 1112 to activate the sirens immediately and to confirm when they had been activated.

At 1113 Callaway County EOC notified dispatch to activate the sirens. The sirens sounded at 1114. Callaway County EOC contacted the State EOC at 1115. After it was confirmed by Callaway County that the sirens were activated, the state at 1115 informed the radio station to begin broadcast of the message.

At 1115, KXTY simulated the EAS tones and reading the EAS message. At 1116, the State began the special news broadcast and KXTY began a simulated broadcast and recording of the message. This process was completed at 1120.

Based on the above corrective actions demonstrated, this Deficiency is now closed.

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

4.2.1.2. Missouri Dose Assessment/Field Team Coordination

- a. MET: 1.a.1, 1.b.1, 1.d.1, 1.e.1, 2.a.1, 2.b.1, 2.b.2, 2.d.1, 2.e.1, 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 Team A

- 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 Team B

- 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 Ingestion Sampling Teams

- a. MET: 1.a.1, 1.d.1, 1.e.1, 3.a.1, 4.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

4.2.1.6. Missouri Joint Information Center

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

4.2.1.7. Missouri Forward Command Post/EOF

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

4.2.1.8. EAS Station - KTXV

- a. MET: 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

4.2.1.9. Fulton Reception Diagnostic Center - State Prison

- a. MET: 1.c.1, 1.d.1, 1.e.1, 3.a.1, 3.b.1, 3.c.1, 6.a.1.
- b. AREAS REQUIRING CORRECTIVE ACTION: None
- c. DEFICIENCY: None
- d. NOT DEMONSTRATED: None
- e. PRIOR ISSUES - RESOLVED: None
- f. PRIOR ISSUES - UNRESOLVED: None

4.2.1.10. Fulton State Hospital - Psychiatric

- a. MET: 1.e.1, 3.a.1, 3.b.1, 3.c.1, 6.a.1.
- b. AREAS REQUIRING CORRECTIVE ACTION: None
- c. DEFICIENCY: None
- d. NOT DEMONSTRATED: None
- e. PRIOR ISSUES - RESOLVED: None

- f. PRIOR ISSUES - UNRESOLVED: None

4.2.1.11. University of Missouri Nuclear Laboratory

- a. MET: 1.e.1, 3.a.1, 4.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. Risk Jurisdictions

4.2.2.1. Callaway County/Fulton Emergency Operations Center

- 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, 3.f.1, 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

4.2.2.2. Fulton Public School District # 58

- 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

4.2.2.3. St Peter Parochial School

- 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. Callaway Hospital (Sheltering)

- a. MET: 1.e.1, 3.a.1, 3.b.1, 3.c.1, 6.a.1.
- b. AREAS REQUIRING CORRECTIVE ACTION: None
- c. DEFICIENCY: None
- d. NOT DEMONSTRATED: None
- e. PRIOR ISSUES - RESOLVED: None
- f. PRIOR ISSUES - UNRESOLVED: None

4.2.2.5. Fulton Manor Nursing Home

- 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. Ashbury Heights of Fulton

- 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. Bristol Manor of Fulton

- 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

4.2.2.8. Gasconade County Emergency Operations Center

- 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, 3.f.1, 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

4.2.2.9. Montgomery County Emergency Operations Center

- 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, 3.f.1, 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. Montgomery R-II Schools

- 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

4.2.2.11. Osage County Emergency Operations Center

- 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, 3.f.1, 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

4.2.3. Support Jurisdictions

4.2.3.1. Jason & Soldiers Halls Reception and Care Center

- a. MET: 1.a.1, 1.b.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

4.2.3.2. Callaway Community Hospital

- 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

4.2.3.3. Callaway County Ambulance District

- 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

4.2.3.4. Montgomery R-II Reception and Care Center

- 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

EXERCISE EVALUATORS AND TEAM LEADERS

DATE: 2009-10-20, SITE: Callaway Nuclear Power Plant, MO

| LOCATION | EVALUATOR | AGENCY |
|--|---|--------------------------------------|
| Missouri State Emergency Operations Center | William Maier *David Smith | NRC FEMA VII |
| Missouri Dose Assessment/Field Team Coordination | *Kim Steves | Kansas Dept of Health |
| Missouri Radiological Field Team A | *Robert Dye | EPA |
| Missouri Radiological Field Team B | *Sonia Eischen | ICF |
| Missouri Ingestion Sampling Teams | *Robert Dye | EPA |
| Missouri Joint Information Center | *Robert Duggleby William McRee | ICF ICF |
| Missouri Forward Command Post/EOF | *Al Lookabaugh Daniel Prevo John Wills | ICF ICF ICF |
| EAS Station - KTXV | *Andrew Chancellor | FEMA VII |
| Fulton Reception Diagnostic Center - State Prison | *David Smith | FEMA VII |
| Fulton State Hospital - Psychiatric | *David Smith | FEMA VII |
| University of Missouri Nuclear Laboratory | *David Jacobson | ICF |
| Callaway County/Fulton Emergency Operations Center | *Audie Canida Lisa Rink Louis Sosler | FEMA VII FEMA IV ICF |
| Fulton Public School District # 58 | *David Smith | FEMA VII |
| St Peter Parochial School | *David Smith | FEMA VII |
| Callaway Hospital (Sheltering) | *Sonia Eischen | ICF |
| Fulton Manor Nursing Home | *David Smith | FEMA VII |
| Ashbury Heights of Fulton | *David Smith | FEMA VII |
| Bristol Manor of Fulton | *David Smith | FEMA VII |
| Gasconade County Emergency Operations Center | *Jeff Clark George MacDonald Richard McPeak | FEMA VII ICF ICF |
| Montgomery County Emergency Operations Center | Lenora Borchardt *Rex Jennings Michael Meshenberg | ICF FEMA VII ICF |
| Montgomery R-II Schools | *David Jacobson | ICF |
| Osage County Emergency Operations Center | Sharron McDuffie Jeff McSpaden *Joe Schulte | FEMA VII DOT FEMA VII |
| Jason & Soldiers Halls Reception and Care Center | Sonia Eischen David Jacobson Al Lookabaugh William McRee *David Smith | ICF ICF ICF ICF FEMA VII |
| Callaway Community Hospital | *David Jacobson | ICF |
| Callaway County Ambulance District | *William McRee | ICF |
| Montgomery R-II Reception and Care Center | Sonia Eischen Al Lookabaugh William McRee *David Smith | ICF ICF ICF FEMA VII |
| * Team Leader | | |

APPENDIX 2

EVALUATION AREAS AND EXTENT OF PLAY

March 23, 2009

Mr. Paul Parmenter, Director
Missouri State Emergency Management Agency
2302 Militia Drive
Jefferson City, Missouri 65102

Dear Mr. Parmenter:

The following are provided as the exercise requirements for the full-scale exercise at the Callaway Nuclear Power Plant on October 20th and 21st, and for related, out of sequence evaluations to be conducted as part of the overall Callaway exercise on August 17th and 18th. The dress rehearsal will be conducted August 19th and 20th, 2009, and will be observed by FEMA/contract staff.

The requirements set forth herein are those **IN ADDITION** to the generic extent of play criteria for each evaluation area/location. The generic extents of play requirements are **INCLUDED** as requirements for this exercise. Refer to the previously provided Due Dates List and the enclosed Generic Extent of Play for complete listing of the locations and details of the criteria to be evaluated. The following requirements clarify, modify or extend those generic criteria.

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 be pre-positioned.

At the Montgomery County R-II 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.

Personnel may be pre-positioned in their normal, duty locations for the out-of-sequence medical drill conducted by Callaway Community Hospital and the Callaway Ambulance Service. Set-up of facilities may occur prior to the drill; however, the drill may not commence until all evaluators are in-place and permission is given to proceed.

Personnel may be pre-positioned at Jason and Soldiers Hall; however, no set up of the facility should proceed until all evaluators are in-place.

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.

It is understood that cellular telephony WILL 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.

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.

Field team equipment checks will be conducted at a location agreed upon in advance by Region VII and your staff where field team members will meet the assigned evaluators PRIOR to the issuance of instrumentation and the performance of operability checks.

EVALUATION AREA 2: PROTECTIVE ACTION DECISION-MAKING

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

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

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 medical portion of the exercise, 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 Montgomery County R-II 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 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 the medical drill, 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 of the KI stocks must be available for inspection.

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 1/3 of the transportation providers utilized in providing transportation for disabled individuals. These calls must be documented.

All facilities, individuals with special needs, and transportation providers that are required to be notified must be clearly identified and the actual or simulated contacts appropriately documented.

Demonstration of the Telecommunications Device for the Deaf (TDD) will be conducted by interview at each EOC or 911 centers equipped with TDD devices. In addition, appropriate documentation of the latest test of the device will be provided to the Evaluator.

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 Callaway R-II (Mokane). An exercise evaluator will be assigned to the school 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 the 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.

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.

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.

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 may be explained during interview with the evaluator.

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 (KTTY) to observe the station's procedures for 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 to stay tuned for additional information.

Actual contact with the EAS station and dissemination of the messages to the radio station must be demonstrated.

The procedures for siren activation must be demonstrated up to the point of actual activation.

Actual siren activation may be simulated. In addition, tone alert radio activation may be simulated by the EAS station, Radio station KTXV.

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 Public Information Center (JPIC) located at the State Emergency Operations Center in Jefferson City.

Sufficient and timely media briefings should be conducted from this location.

Each public inquiry hotline staff member must demonstrate the capability to respond to an average of at least six calls per hour throughout the exercise.

Any trends in rumors identified by public inquiry hotline staff must be addressed by the JPIC in news releases and/or media briefings. At least one message should address a false or misleading rumor for which measures should be taken.

Evaluators will be assigned to the JPIC 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.

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 Jason and Soldiers Hall Reception and Care Center is 478 (20 percent). The number of evacuees that must be monitored within twelve hours at the Montgomery County R-II High School Reception and Care Center is 130 (20 percent). According to the plan, one portal monitors and one state-inventoried backup portal monitor will be available at each facility and will require one monitoring team at each location.

At least one monitoring team with a CDV-700 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.

One additional monitoring team must be available for evacuee (male/female) decontamination operations at each location.

The facilities at Montgomery R-II Schools and at Jason and Soldiers Hall 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 each reception center to demonstrate registration, monitoring, and decontamination capabilities.

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 at both the Montgomery County R-II School Reception and Care and

the Jason and Soldiers Hall Reception and Care Center. This would include but not be limited to the Division of Family Services and American Red Cross plus support personnel from other agencies.

In addition to sufficient staffing for one shift, documentation that additional personnel are readily available and rostered for twenty-four hour operation of each center 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 conducted by interview.

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.

There are a total of seventeen (17) facilities, locations or performance areas to be evaluated as part of this exercise.

IMPORTANT NOTE: In the event that an evaluator identifies an exercise or out of sequence (OOS) issue, the evaluator will discuss it with the Team Leader, Controller, and Trainer (state or utility representative).

If training and re-demonstration will not affect the flow of the exercise or OOS, the trainer will provide immediate instruction and a re-demonstration will occur to correct the issue.

The exercise or OOS report will detail the exercise issue and note that it was corrected.

Out of Sequence Evaluations

The following locations will be evaluated out of sequence during the period August 17 through August 18, 2009:

The evaluation of the Montgomery R-II Schools Reception and Care Center will occur on the evening of August 17, 2009.

The Callaway Community Hospital MS-1 and Callaway County Ambulance District evaluations will be conducted on the morning of August 18, 2009.

The Callaway Community Hospital sheltering evaluation will be conducted on the morning/afternoon of August 18, 2009.

The evaluation of Jason and Soldier's Hall will be the evening of August 18, 2009.

If you have any questions concerning the above, please contact Judy Dodgen, Callaway Site Specialist, at (816) 283-7091.

Sincerely,



Ronald L. McCabe, RAC Chair and
Chief, Technological Hazards Branch

cc: Ms. Vanessa Quinn, HQ REP – w/o enclosure
Ms. Lisa Banks-Robinson, HQ REP – w/o enclosure
Mr. Edward Gray, SEMA
Mr. Stan Crawford, Ameren UE – w/o enclosure
Mr. Keith Henke, DHSS – w/o enclosure
Mr. Bill Maier, NRC IV - w/o enclosure

Enclosure: Generic Extent of Play

APPENDIX 3

EXERCISE SCENARIO & TIMELINE

Initial Conditions

The plant is at 100% with 11 months of run since the last Refuel outage and the "A" D/G is OOS for a Fuel Transfer pump failure (mini scenario #1). The replacement pump from Wolf Creek is expected at 0900 and will take an additional 6 more hours to complete the work.

The weather forecast for today calls for mostly sunny skies. Winds are from the southeast (from 130°) at 5 miles per hour. Stability class is "E". Highs today are predicted in the upper 60's and reaching the lower 50's by this evening.

Narrative Summary The Scenario is called "199"

The crew should take the watch at 0630 and walk down the boards. Shortly there after they will receive Annunciator 98E giving indication of an earthquake. If asked SAS operator will confirm that camera movement indicates an Earthquake. If the crew calls either of the Earthquake Information Centers they will confirm an earthquake. An **Unusual Event** on **EAL HU1.1** should be classified/declared about 0720 and the corresponding initial notification completed within 15 minutes after the initial classification/declaration (approximately 0735).

After the notification is sent for the UE there will be a second earthquake with the following results:

- Reflash of Annunciator 98E
- Annunciator 98D (OBE earthquake)
- LOSP
- Turbine Trip / Reactor Trip.
- Missile shield outside the Containment Equipment Hatch falls off track. (Mini Scenario #2)
- There is an increase in RCS activity.

There will also be a KC fire Water leak on the south side of Stores #1 (Mini Scenario #5).

The "B" D/G will start to supply NB02 per design. Details of "B" SI Pump breaker failure are in Mini Scenario #3. An **ALERT** should be declared by 0800 on **EAL HA1.1** (OBE Earthquake) or **SA1.1** (A/C power reduced to a single source for NB01 & NB02 for ≥ 15 minutes). The notification of the Alert should take place by 0815.

By 0810 the EOF and TSC should be activated and taken turnover from the Control Room. At 0820 the "B" D/G will trip (Details are in mini scenario #4) leading the SM to declare a **Site Area Emergency** on **EAL SS1.1** Loss of all A/C ≥ 15 minutes. This should happen by 0930 and the notification for the SAE should be sent by 0945.

At this point there will be an RCS leak from the failure of Pressurizer Surge line. RCS activity will increase and because of the breach at the Containment equipment hatch there is a release path to the environment that is an unmonitored path. A **General Emergency** should be declared on **EAL RG1.3** from MAGEM dose projections. **FG1.1** is also possible as there will be Fuel Clad Barrier loss indicator from Hi RCS activity, RCS Barrier potential loss from 250 gpm leak, and the visual damage inspection that will reveal the Containment breach at the equipment hatch. **SG1.1**, Loss of All A/C with restoration not likely in 4 hours should not be declared as restoration of A/C power will be possible. Timing of actual indicators seen first will depend on Crew actions. The initial PAR associated with the General Emergency Declaration should be to evacuate 2 miles around the plant and evacuate out to 5 miles in the downwind sectors (**P, Q and R**). Notifications should be sent to SEMA and the 4 EPZ counties. When the release is terminated or the "B" D/G restored the Drill will be complete with Functional Area Critiques and Facility Critiques to follow.

Sequence of Events

| Time | Message # or Event | Initiated from or by | Issued to | Event Description |
|--------|------------------------|-----------------------|--------------------|--|
| Set up | <i>Sim Oper Action</i> | | | <i>Sim Operator Open Earthquake LOSP.LSN</i> |
| 0600 | Stabilize Simulator | Simulator Controllers | | Establish drill conditions in Simulator and verify initial parameters. Perform initial checks. |
| 0630 | Morning Meeting | Controller | EDO and Key Coords | Simulates Morning Meeting for Plant. Established Initial conditions for drill with Shift Managers Turnover sheet emailed to them. |
| 0630 | Crew Turnover | Simulator Controllers | Crew | Crew walks down MCB and briefs. |
| (0700) | OBS | Controller | Shift | Drill Start |
| (0705) | Mssg# 1 | | Shift | Annunciator 98E Seismic Recorder ON. |
| (0710) | Controller inject | Simulator Controller | CRS | When CRS attempts to call US Geological Survey or SLU Geophysical Observatory give them Sim Booth phone number (6-8809). If Security is contacted they will report that CAS/SAS saw camera movement and Security officers in the field reported ground movement. |
| (0720) | OBS | NA | | Unusual Event declared on EAL HU1.1 seismic event |

| Time | Message # or Event | Initiated from or by | Issued to | Event Description |
|--------|--|--|---------------------|---|
| (0735) | OBS | NA | State and Locals | Initial Notification to State and Counties complete. |
| (0745) | <i>Sim Oper Action</i> | <i>Simulator Operator</i> | <i>Crew</i> | The following indicators arrive over the next few minutes. <ul style="list-style-type: none"> • Reflash of Annunciator 98E • Annunciator 98D (OBE earthquake) • LOSP • Turbine Trip / Reactor Trip. • Missile shield outside the Containment Equipment Hatch falls off track. (Mini Scenario #2). |
| (0745) | <i>Sim Oper Action Mssg #1</i> | <i>Simulator Operator and Mssg#1</i> | <i>Crew</i> | Fire water line break outside of Stores #1 Bldg. Both diesel Fire Pumps will start. Store Keeper will report to CRS that they see lots of water coming out of the ground. Mini Scn #5 |
| (0746) | <i>Sim Oper Action Mn-Scn #3</i> | <i>Simulator Operator</i> | <i>Crew</i> | “B” D/G starts to supply NB02. “B” SI Pump will fail with blown Control Power and Closing power fuses (Mini Scenario #3). |
| (0750) | <i>Sim Oper Action</i> | <i>Simulator Operator</i> | <i>Crew</i> | There is an increase in RCS activity (<i>SJRE01 is on Screen PCDU but not in service if L/D is isolated</i>). |

| | | | | |
|--------|----------------------------|-------------------------------|---------------------|--|
| (0800) | OBS | NA | | Alert declared on EAL HA1.1 (OBE earthquake) or EAL SA1.1 (AC power reduced to one source for ≥ 15 minutes). |
| (0805) | OBS | CR/ Sim | Site Controller | SM will make plant announcement and pager message to activate the ERO will be sent. |
| (0815) | OBS | NA | State and Locals | Initial Notification to State and Counties complete. |
| (0830) | | | | Waiting for TSC and EOF to activate and relieve the Control Room. |
| (0915) | <i>Sim Oper Action</i> | <i>Simulator Operator</i> | <i>Crew</i> | “B” D/G trip (Mini Scenario#4) |
| (0930) | Mn-Scn #4 Mssg# 2 | | Shift | Responder to the “B” D/G will report back that the room has a high water level from ESW pipe break. Expansion joint flex section of piping has broken. |
| (0930) | <i>Sim Oper Action</i> | <i>Simulator Operator</i> | <i>Crew</i> | <i>Input RCS activity level rises.</i> |
| (0930) | <i>Sim Oper Action</i> | <i>Simulator Operator</i> | <i>Crew</i> | Failure of GTRE0059 and 60 |
| (0930) | OBS | NA | Site | Site Area Emergency declared on EAL SS1.1 Loss of all AC power for >15 minutes. |

| | | | | |
|-------------|------------------------|-----------------------------|------------------|--|
| (0935) | Mssg #3 | Simulator Controller | Sec Coord or OSA | This message will come to the TSC either from a search team sent out or by a Security Officer. This will be the indication that Containment is breached. (Mini Scenario #2) |
| (0945) | OBS | NA | State and Locals | Initial Notification to State and Counties complete. |
| (0950) | Mssg #5 | TSC Controller | ETC or OSC | Call comes in to the ETC or OSC that the repair team estimates that it will take about 2 hours to take the expansion joint from the A D/G and install on the B D/G. |
| (1000) | NA | TSC | All | Simulated evacuation of Non-Essential Plant personnel completed |
| (1000) | Mssg# 4 | | Shift | Info from Load Dispatch will indicate that the time for restoration of power to Callaway will take about 2 hours. |
| (1040) | Sim Oper Action | Simulator Operator | Crew | <i>Simulator operator will insert a large RCS Leak</i> |
| (On Demand) | Sim Oper Action | Simulator Operator | Crew | <i>When crew asks for EOP Add 22 RCP Seal Iso, run Lesson Plan "ILT EOP" (RCP Seal Isolation.LSN)</i> |
| (1100) | OBS | NA | Site | Conditions exceeded for a GE declaration EAL FG1.1 or RG1.3. PARs of Evac 2 mi. around and 5 mi. in the downwind sectors (P, Q and R). Based on two Fission Product Barrier losses and one potential loss or release calculations / FMT results that yield MAGNEM calculations for projected doses. |
| (1100) | OBS | NA | All | Lunch arrives |
| (1115) | OBS | NA | State and locals | Initial Notification to State and Counties complete. |
| (1230) | OBS | NA | | E Team Successful in starting "B" D/G |
| (1240) | OBS | NA | | Release ends. E Team successful in plugging equipment hatch hole. Depending on the rad conditions this activity may not be completed before the drill is complete. |
| (1320) | | | | Drill complete and Critiques begin. |

Times in (NNNN) are approximate