



**FEMA**

July 15, 2008

Mr. Elmo E. Collins, Jr.  
Regional Administrator  
U.S. NRC, Region IV  
611 Ryan Plaza Drive, Suite 400  
Arlington, TX 76011-4005

Dear Mr. Collins:

Enclosed is a copy of the radiological emergency preparedness final report for the Arkansas Nuclear One (ANO) Plume and Ingestion Pathway exercise evaluated on May 21-22, 2008.

There were three Areas Requiring Corrective Action (ARCA), two of which were corrected onsite, and three Plan Issues identified during the plume and ingestion exercise. The remaining ARCA is scheduled for correction at the next biennial exercise. The Plan Issues will be corrected through the State of Arkansas Annual Letter of Certification due by January 31, 2009.

Based on the results of this exercise, the offsite radiological emergency response plans and preparedness for the State of Arkansas 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 Arkansas site-specific to ANO will remain in effect.

A copy of this report was provided electronically to Mr. Anthony McMurtray, Chief, Inspection and Communication Section, at NRC Headquarters and the NRC Public Document Room. Should you have questions, please contact Lisa Hammond, Regional Assistance Committee Chair, at 940-898-5199, or Chad Johnston, ANO Site Specialist, at 940-898-5344.

Sincerely,

A handwritten signature in black ink, appearing to read "William Peterson".

William Peterson  
Regional Administrator

Enclosure

cc: Arkansas Department of Emergency Management – David Maxwell  
Arkansas Department of Health – Bernie Bevill  
Arkansas Department of Health – Don Greene

# Arkansas Nuclear One

Exercise Report - 2008-05-21

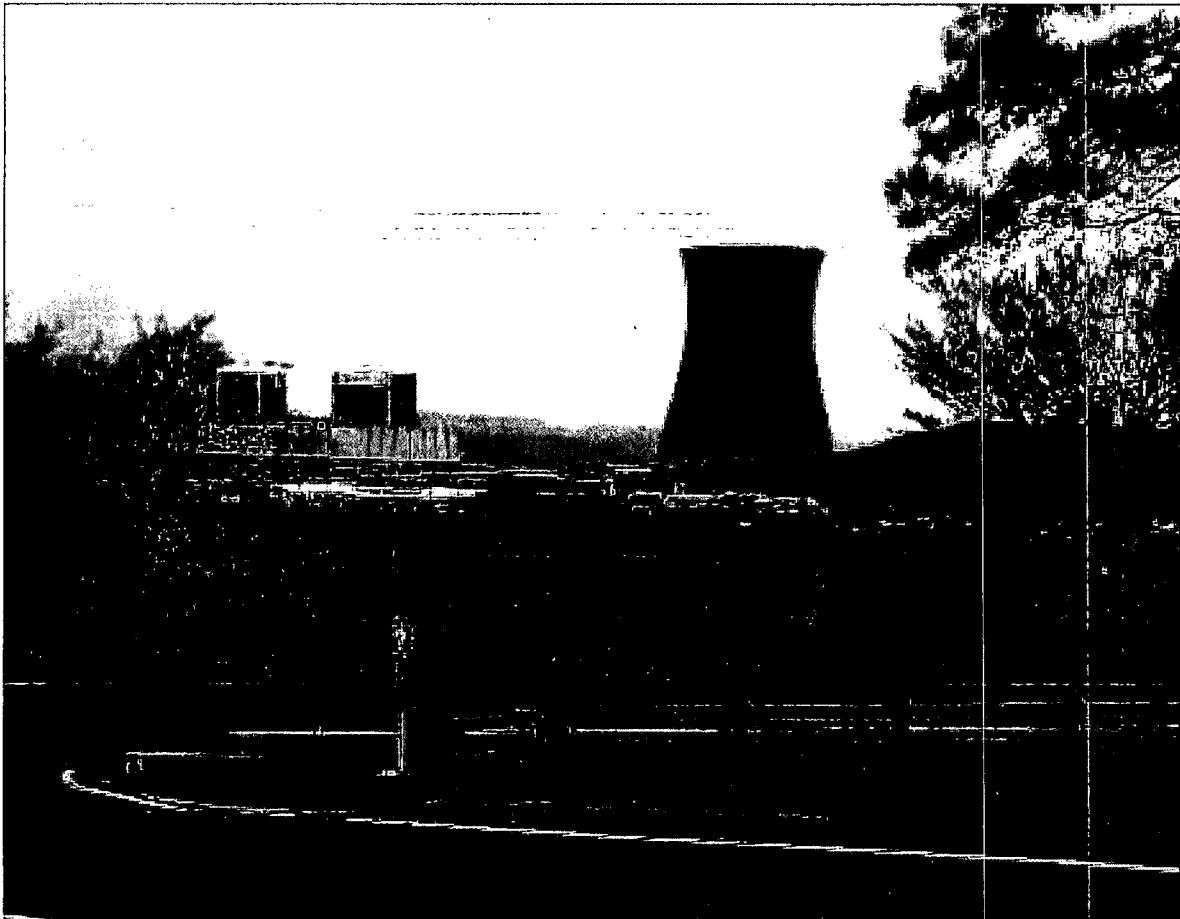
Final Report - Radiological Emergency

Preparedness (REP) Program

2008-07-15



# FEMA





# FEMA

## Exercise Report

Arkansas Nuclear One

Exercise Date: 2008-05-21

Report Date: 2008-07-15

U.S. DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

REP Program

800 North Loop 288

Denton, TX 76209

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# 1. Executive Summary

On May 21, 2008, a biennial Radiological Emergency Preparedness (REP) exercise was conducted in the plume exposure pathway emergency planning zone (EPZ) and on May 22, 2008, in the ingestion exposure and relocation, reentry, and return pathway EPZ around Arkansas Nuclear One (ANO) located near Russellville, Pope County, Arkansas. The U.S. Department of Homeland Security-Federal Emergency Management Agency (DHS-FEMA) Region VI evaluated the exercise. The purpose was to assess the level of preparedness of state and local responders to react to a simulated radiological emergency at ANO. This exercise was held in accordance with DHS-FEMA policies and guidance concerning the implementation of state and local radiological emergency preparedness plans and procedures.

The previous exercise at this site was a Plume Exposure Pathway Exercise conducted on April 26, 2006. The qualifying emergency preparedness exercise was conducted on October 1, 1980. There have been twenty evaluated exercises, including the exercise on May 21, 2008, plus several drills conducted since 1984.

DHS-FEMA Region VI, wishes to acknowledge the efforts of the many individuals in the State of Arkansas, Pope, Yell, Logan, and Johnson Counties, National Oceanic and Atmospheric Administration (NOAA) Forecast Office, KXRJ Radio Station, and surrounding jurisdictions who participated in this exercise. 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 they 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 final written evaluation of the biennial exercise. The state and local organizations, except where noted in this report, demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There were no Deficiencies, three Areas Requiring Corrective Action (ARCA), two of which were corrected during the exercise, and three planning issues identified.

## 2. Introduction

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

FEMA Rule 44 CFR 350 establishes the policies and procedures for FEMA's initial and continued approval of state and local government 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 Fixed Nuclear Facility Radiological Emergency Response Planning include:

- Taking the lead in off-site emergency response planning and in the review and evaluation of state and local government emergency plans, ensuring that the plans meet the federal criteria set forth in NUREG-0654/FEMA REP-1, Rev.1 (November 1980).
- Determining whether the state and local emergency response plans can be implemented on the basis of observation and evaluation of an exercise conducted by the appropriate emergency response jurisdictions.
- Responding to requests by the U.S. Nuclear Regulatory Commission (NRC) pursuant to the Memorandum of Understanding between the NRC and FEMA dated June 17, 1993 (Federal Register, Vol. 58, No. 176, September 14, 1993); and
- Coordinating the activities of volunteer organizations and other involved Federal agencies. Representatives of these agencies, listed below, serve as members of the Regional Assistance Committee (RAC), which is chaired by FEMA.
  - U.S. Nuclear Regulatory Commission (NRC)
  - U.S. Environmental Protection Agency (EPA)
  - U.S. Department of Energy (DOE)
  - U.S. Department of Health and Human Services (DHHS)

- U.S. Department of Transportation (DOT)
- U.S. Department of Agriculture (USDA)
- U.S. Department of Interior (DOI)
- U.S. Food and Drug Administration (FDA)

The findings presented in this report are based on the federal evaluation team's assessment of the participants' response to a simulated radiological incident at the Arkansas Nuclear One plant that affected the offsite population. The RAC Chair made the final classification of any issues identified, and the FEMA Regional Administrator approved the report.

The criteria used in the evaluation process are contained in:

- NUREG-0654, FEMA-REP-1, Rev. 1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants (November 1980);
- Interim REP Program Manual, including the Radiological Emergency Preparedness Exercise Evaluation Methodology (August 2002). Section III of this report entitled "Exercise Overview" presents basic information and data relevant to the exercise. This section contains a description of the emergency planning zone, a listing of all participating jurisdictions, which were evaluated, and a tabular presentation of the times of actual occurrence of key exercise events and activities.

Section IV of this report, entitled "Exercise Evaluation and Results," presents basic information on the demonstration of applicable exercise criterion at each jurisdiction or functional entity in a jurisdiction-based format. This section also contains descriptions of all Deficiencies and ARCAs assessed during the exercise and recommended corrective actions, as well as descriptions of ARCAs assessed during previous exercises and the current status of each.



## 3. Exercise Overview

This section contains data and basic information relevant to the May 21-22, 2008, Arkansas Nuclear One exercise to test the off-site response capabilities in the area surrounding ANO. This section of the report includes a description of the EPZ, a listing of all participating jurisdictions which were evaluated, and a tabular presentation of the times of actual occurrence of key exercise events and activities.

### 3.1. EPZ Description

The 10-mile EPZ around ANO, a circle with a radius of 10 miles with ANO at the center, can be described best by referring to a number of prominent features or landmarks in the area.

The most distinctive feature of the EPZ is the Arkansas River and Lake Dardanelle. The river bisects the zone from the northeast near the City of Knoxville to the southeast near the city of Dardanelle. Lake Dardanelle, which surrounds the ANO peninsula and ANO, is the most central feature.

The northern edge of the zone lies approximately 1 mile north of Piney Creek in Pope County. The southern edge lies approximately 2 miles directly south of Mt. Nebo in Yell County. A point approximately one-quarter mile west of the junction of River Mountain Road and Highway 22 in Logan County marks the western edge of the EPZ. The eastern boundary of the zone lies approximately along a line marking the city limits of Russellville and Pottsville in Pope County.

Portions of Pope, Yell, Logan, and Johnson counties are included in the EPZ. The 10-mile EPZ contains approximately 46,607 residents with just over 68% of the population in the cities of Russellville and Dardanelle in the southeastern quadrant. The EPZ is subdivided into 15 protective action zones for emergency planning purposes as well as the implementation of protective actions. Interstate 40 and State Highway 64 cross the EPZ from east to west, and State Highway 7 crosses from north to south.

The 50-mile ingestion pathway zone (IPZ) can be described as a circle with a 50-mile radius with ANO at its center. It covers all or part of 19 Arkansas counties including: Pope, Yell, Logan, Johnson, Conway, Newton, Madison, Scott, Crawford, Perry,

Garland, Faulkner, Searcy, Franklin, Sebastian, Montgomery, Saline, Pulaski, and Van Buren. The 50-mile IPZ boundary can be approximately delineated using these points.

The northern edge is 50 miles north of ANO at a point lying 6.5 miles south of the northern border of Newton County and 1 mile north of Jasper, Arkansas. The eastern edge is 50 miles east of ANO at a point lying 7 miles east of the western border of Faulkner County and 5.5 miles northeast of Greenbrier, Arkansas. The southern edge is 50 miles south of ANO at a point lying 13 miles south of the northern border of Garland County and 11 miles northwest of Hot Springs, Arkansas. The western edge is 50 miles west of ANO at a point lying 2 miles west of the eastern border of Sebastian County and 5 miles southeast of Lavaca, Arkansas.

The Arkansas River, Interstate 40 and State Highway 64 from Mulberry, Arkansas to near Roland, Arkansas, bisect the 50-mile IPZ west to east. Its most central feature is Lake Dardanelle and the ANO peninsula.

## 3.2. Exercise Participants

Agencies and organizations of the following jurisdictions participated in the Arkansas Nuclear One exercise:

### State Jurisdictions

- Arkansas Department of Agriculture
- Arkansas Department of Emergency Management
- Arkansas Department of Health
- Arkansas Department of Natural Resources
- Arkansas Game and Fish Commission
- Arkansas Poultry and Livestock Commission
- Arkansas Plant Board

### Risk Jurisdictions

- City of Russellville Fire Department
- City of Russellville Mayor's Office
- Pope County Cooperative Extension Service
- Pope County Emergency Medical Services
- Pope County Judge
- Pope County Office of Emergency Management
- Pope County Sheriff's Office
- City of Danville Police

City of Dardanelle City Manager's Office

City of Dardanelle Police

Yell County Emergency Medical Services

Yell County Judge

Yell County Office of Emergency Management

Yell County Sheriff's Office

City of Clarksville

Johnson County Fire Services

Johnson County Office of Emergency Management

City of Paris Fire Department

City of Paris Police Department

Logan County Cooperative Extension Service

Logan County Emergency Medical Services

Logan County Health Department

Logan County Judge

Logan County Office of Emergency Management

Logan County Sheriff's Office

#### Private Jurisdictions

Arkansas Nuclear One - Entergy Operations, Inc.

American Red Cross

KXRJ 91.9 FM Radio Station

#### Federal Jurisdictions

United States Department of Energy

United States Department of Homeland Security

United States Department of Agriculture

United States Nuclear Regulator Commission

United State Environmental Protection Agency

National Oceanic and Atmospheric Administration

### 3.3. Exercise Timeline

Table 1, on the following page, presents the times at which key events and activities occurred during the ANO Plume Exercise held on May 21, 2008.

**Table 1 - Exercise Timeline**  
**DATE: 2008-05-21, SITE: Arkansas Nuclear One, AR**

| Emergency Classification Level or Event  | Time Utility Declared | State EOC | ADH ECC | ADH/SEOF | ANO/ENC | Alt. JIC | Johnson County EOC & T/ACP |
|--|-----------------------|-----------|---------|----------|---------|----------|----------------------------|
| Unusual Event  | 0801                  | 0816      | 0811    | 0815     | 0814    |          | 0808                       |
| Alert  | 0923                  | 0940      | 0935    | 0937     | 0923    |          | 0935                       |
| Site Area Emergency  | 1036                  | 1051      |         | 1036     | 1036    | 1039     | 1051                       |
| General Emergency  | 1113                  | 1116      |         | 1113     | 1113    | 1129     | 1127                       |
| Simulated Rad. Release Started   | 1112                  |           |         | 1112     | 1112    | 1138     | 1223                       |
| Simulated Rad. Release Terminated  | 1315                  |           |         | 1315     |         |          |                            |
| Facility Declared Operational  |                       | 0845      |         | 1045     |         | 1000     | 0835                       |
| Declaration of State of Emergency  |                       | 1137      |         | 1140     | 1220    |          | 1105                       |
| Exercise Terminated  |                       | 1315      |         | 1315     | 1314    | 1315     | 1327                       |
| Early Precautionary Actions:<br>Call and Hold School Bus Drivers and open reception centers; evacuate Lake Dardanelle/Mt. Nebo State Parks |                       |           |         | 0823     | 0915    |          |                            |
| 1st Protective Action Decision:<br>Evacuate Dover, London, and Russellville schools  |                       |           |         | 1027     | 0951    |          | 0952                       |
| 1st Siren Activation   |                       |           |         | 1029     | 1029    |          |                            |
| 1st EAS or EBS Message   |                       |           |         | 1030     | 1030    |          |                            |
| 2nd Protective Action Decision:<br>Evacuate Zones G,H,I,J,K,L,M,N,O,R,U and Shelter Zones P,Q,S,T  |                       |           |         | 1108     | 1108    |          | 1107                       |
| 2nd Siren Activation   |                       |           |         | 1120     |         |          |                            |
| 2nd EAS or EBS Message   |                       |           |         | 1121     |         |          |                            |
| 3rd Protective Action Decision:<br>Agriculture Advisory Embargo (Logan County and Yell County)   |                       |           |         |          | 1220    |          |                            |
| 3rd Siren Activation   |                       |           |         | 1220     |         |          |                            |
| 3rd EAS or EBS Message   |                       |           |         | 1221     |         |          |                            |
| KI Administration Decision:  |                       |           |         | 1142     | 1220    |          |                            |

**Table 1 - Exercise Timeline**  
**DATE: 2008-05-21, SITE: Arkansas Nuclear One, AR**

| Emergency Classification Level or Event  | Time Utility Declared | Logan County EOC & T/ACP | Pope County EOC & T/ACP | Yell County EOC & T/ACP | KXRJ | NOAA NER |
|--|-----------------------|--------------------------|-------------------------|-------------------------|------|----------|
| Unusual Event  | 0801                  | 0815                     | 0809                    | 0806                    |      |          |
| Alert  | 0923                  | 0938                     | 0935                    | 0936                    |      |          |
| Site Area Emergency  | 1036                  | 1045                     | 1044                    | 1049                    |      |          |
| General Emergency  | 1113                  | 1129                     | 1121                    | 1130                    |      |          |
| Simulated Rad. Release Started   | 1112                  | 1150                     | 1251                    | 1157                    |      |          |
| Simulated Rad. Release Terminated  | 1315                  |                          |                         |                         |      |          |
| Facility Declared Operational  |                       | 0854                     | 0820                    | 0856                    |      |          |
| Declaration of State of Emergency  |                       |                          | 0949                    |                         |      |          |
| Exercise Terminated  |                       | 1330                     | 1325                    | 1325                    |      |          |
| Early Precautionary Actions:<br>Call and Hold School Bus Drivers and open reception centers; evacuate Lake Dardanelle/Mt. Nebo State Parks |                       |                          | 0821                    | 0822, 0906, 0958        |      |          |
| 1st Protective Action Decision:<br>Evacuate Dover, London, and Russellville schools  |                       | 0955                     | 0949                    | 0951                    | 1029 |          |
| 1st Siren Activation   |                       |                          |                         |                         | 1030 |          |
| 1st EAS or EBS Message   |                       |                          |                         | 1030                    | 1031 | 1027     |
| 2nd Protective Action Decision:<br>Evacuate Zones G,H,I,J,K,L,M,N,O,R,U and Shelter Zones P,Q,S,T  |                       | 1129                     | 1103                    | 1114                    |      |          |
| 2nd Siren Activation   |                       |                          |                         |                         |      |          |
| 2nd EAS or EBS Message   |                       |                          | 1110                    | 1119                    |      |          |
| 3rd Protective Action Decision:<br>Agriculture Advisory Embargo (Logan County and Yell County)   |                       | 1220                     |                         | 1205                    |      |          |
| 3rd Siren Activation   |                       |                          |                         |                         |      |          |
| 3rd EAS or EBS Message   |                       |                          |                         | 1209                    |      |          |
| KI Administration Decision:  |                       | 1200                     | 1142                    | 1151                    |      |          |

## 4. Exercise 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 Arkansas Nuclear One exercise to test the off-site emergency response capabilities of State and local governments in the 10-mile EPZ and 50-mile EPZ, surrounding ANO.

Each jurisdiction and functional entity was evaluated on the basis of its demonstration of criteria delineated in exercise evaluation area criteria contained in the Interim REP Program Manual. Detailed information on the exercise evaluation area criteria and the extent-of-play agreement used in this exercise are found in Appendix 3 of this report.

### 4.1. Summary Results of Exercise Evaluation

The matrix presented in Table 2, on the following page(s), presents the status of all exercise evaluation area criteria from the REP Program Manual that were scheduled for demonstration during this exercise by all participating jurisdictions and functional entities. Exercise evaluation area criteria are listed by number and the demonstration status of those evaluation area criteria is indicated by the use of the following letters:

M - Met (No Deficiency, ARCAs assessed and no unresolved ARCAs from prior exercises, planning issues identified or ARCA corrected during the exercise)

D - Deficiency assessed

A - ARCA(s) assessed or unresolved ARCA(s) from prior exercise(s)

N - Not Demonstrated (Reason explained in Subsection B)

Table 2 - Summary of Exercise Evaluation

| DATE: 2008-05-21<br>SITE: Arkansas Nuclear One, AR<br>A: ARCA, D: Deficiency, M: Met |     | State EOC | ADH ECC | ADH/SEOF | AR FRMT 1 | AR FRMT 2 | ANO ENC | Alt. JIC | Johnson County EOC & T/ACP | Logan County EOC & T/ACP | Pope County EOC & T/ACP | Yell County EOC & T/ACP | KXRJ | NOAA NLR |
|--|-----|-----------|---------|----------|-----------|-----------|---------|----------|----------------------------|--------------------------|-------------------------|-------------------------|------|----------|
| <b>Emergency Operations Management</b>   |     |           |         |          |           |           |         |          |                            |                          |                         |                         |      |          |
| Mobilization   | 1a1 | M         | M       | M        |           |           | M       | M        | M                          | M                        | M                       | M                       |      |          |
| Facilities   | 1b1 | M         |         |          |           |           |         |          |                            | M                        |                         |                         |      |          |
| Direction and Control  | 1c1 | M         |         | M        |           |           |         |          | M                          | M                        | M                       | M                       |      |          |
| Communications Equipment   | 1d1 | M         | 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                       |      |          |
| <b>Protective Action Decision Making</b>   |     |           |         |          |           |           |         |          |                            |                          |                         |                         |      |          |
| Emergency Worker Exposure Control  | 2a1 |           |         | M        |           |           |         |          | M                          | M                        | M                       | M                       |      |          |
| Radiological Assessment and PARs   | 2b1 |           |         | M        |           |           |         |          |                            |                          |                         |                         |      |          |
| Decisions for the Plume Phase -PADs  | 2b2 |           |         |          |           |           |         |          | M                          | M                        | M                       | M                       |      |          |
| PADs for protection of special populations   | 2c1 |           |         |          |           |           |         |          | M                          | M                        | M                       | M                       |      |          |
| Rad Assessment and Decision making for the Ingestion Exposure Pathway                | 2d1 |           |         | M        |           |           |         |          |                            |                          |                         |                         |      |          |
| Rad Assessment and Decision making concerning Relocation, Reentry, and Return        | 2e1 |           |         | M        |           |           |         |          | M                          | M                        | M                       | M                       |      |          |
| <b>Protective Action Implementation</b>  |     |           |         |          |           |           |         |          |                            |                          |                         |                         |      |          |
| Implementation of emergency worker exposure control                                  | 3a1 |           |         | M        | M         | M         |         |          | M                          | M                        | M                       | M                       |      |          |
| Implementation of KI decision  | 3b1 |           |         | M        | M         | M         |         |          | M                          | M                        | M                       | M                       |      |          |
| Implementation of protective actions for special populations - EOCs                  | 3c1 |           |         |          |           |           |         |          | M                          | M                        | M                       | M                       |      |          |
| Implementation of protective actions for Schools                                     | 3c2 |           |         |          |           |           |         |          |                            |                          |                         |                         |      |          |
| Implementation of traffic and access control   | 3d1 |           |         |          |           |           |         |          | M                          | M                        | M                       | M                       |      |          |
| Impediments to evacuation are identified and resolved                                | 3d2 |           |         |          |           |           |         |          | M                          | M                        | M                       | M                       |      |          |
| Implementation of ingestion pathway decisions - availability/use of info             | 3e1 | M         |         | M        |           |           |         |          |                            |                          |                         |                         |      |          |
| Materials for Ingestion Pathway PADs are available                                   | 3e2 | M         |         | M        |           |           |         |          |                            |                          |                         |                         |      |          |
| Implementation of relocation, re-entry, and return decisions.                        | 3f1 | M         |         | M        |           |           |         |          | M                          | M                        | M                       | M                       |      |          |
| <b>Field Measurement and Analysis</b>  |     |           |         |          |           |           |         |          |                            |                          |                         |                         |      |          |
| 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         | M         |         |          |                            |                          |                         |                         |      |          |
| Laboratory operations  | 4c1 |           |         |          |           |           |         |          |                            |                          |                         |                         |      |          |
| <b>Emergency Notification and Public Info</b>  |     |           |         |          |           |           |         |          |                            |                          |                         |                         |      |          |
| 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 |           |         |          |           |           |         |          |                            |                          |                         |                         |      |          |
| Emergency information and instructions for the public and the media                  | 5b1 |           |         | M        |           |           | A       | M        |                            |                          |                         |                         |      |          |
| 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 |           |         |          |           |           |         |          |                            |                          |                         |                         |      |          |

## 4.2. Status of Jurisdictions Evaluated

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

**Met** - Listing of the demonstrated exercise evaluation area criteria under which no Deficiencies or ARCAs were assessed during this exercise and under which no ARCAs assessed during prior exercises remain unresolved. This also includes planning issues identified and ARCAs corrected on the spot during the exercise.

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

**Area Requiring Corrective Actions** - Listing of the demonstrated exercise evaluation area criteria under which one or more ARCAs were assessed during the current exercise or ARCAs assessed during prior exercises remain unresolved. Included is a description of the ARCAs assessed during this exercise and the recommended corrective action to be demonstrated before or during the next biennial exercise.

**Not Demonstrated** - Listing of the exercise evaluation area criteria which were not demonstrated as scheduled during this exercise and the reason they were not demonstrated.

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

**Prior ARCAs - Unresolved** - Descriptions of ARCAs assessed during prior exercises that were not resolved in this exercise. Included is the reason the ARCA remains 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 in the REP Program Manual as "...an observed or identified inadequacy of organizational performance in an exercise that could cause a finding that



off-site 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 ARCA is defined in the REP Program Manual. 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, ARCAs, and Plan). This system is used to achieve consistency in numbering exercise issues among 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, ARCAs, and Plan issues includes the following elements,  
with each element separated by a hyphen (-):

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

Exercise Year - The last two digits of the year the exercise was conducted.

Evaluation Area Criterion - A letter and number corresponding to the Evaluation Area criterion.

Issue Classification Identifier - (D = Deficiency, A = ARCA, and P=Plan).

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

## 4.2.1. State Jurisdictions

## 4.2.1.1. Arkansas State Emergency Operations Center

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

## 4.2.1.2. Arkansas Department of Health, Little Rock Emergency Communications Center

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

## 4.2.1.3. Arkansas Department of Health at the State Emergency Operations Facility

- a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.1, 2.d.1, 2.e.1, 3.a.1, 3.b.1, 3.e.1, 3.e.2, 3.f.1, 4.a.2, 5.a.1, 5.b.1.
- b. AREAS REQUIRING CORRECTIVE ACTION: None
- c. DEFICIENCY: None
- d. NOT DEMONSTRATED: None
- e. PRIOR ISSUES - RESOLVED: 1.c.1.

ISSUE NO.: 01-06-1c1-A-01

ISSUE: Risk counties had inadequate information to inform their populations about school evacuation because of the untimely receipt of Protective Action Advisory (PAA) #2. PAA #2 was sent to the risk counties only after PAA#3 was received due to the risk counties asking for the previous PAA.

CORRECTIVE ACTION DEMONSTRATED: Each PAA was communicated to the county judges by the Local Government Liaison (LGL); concurrence was received by the LGL and documented on the Arkansas Department of Health (ADH) "Protective Action Advisory - Population" form.

- f. PRIOR ISSUES - UNRESOLVED: None

#### 4.2.1.4. Arkansas Field Radiological Monitoring

##### Team One

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

#### 4.2.1.5. Arkansas Field Radiological Monitoring

##### Team Two

- a. MET: 1.d.1, 1.e.1, 3.a.1, 3.b.1, 4.a.1, 4.a.3, 4.b.1.
- b. AREAS REQUIRING CORRECTIVE ACTION: 4.b.1.

ISSUE NO.: 01-08-4b1-A-06

ISSUE: Field teams demonstrate the capability to make appropriate measurements and to collect appropriate samples (e.g., food crops, milk, water, vegetation, and soil) to support adequate assessments and protective action decision-making. (NUREG-0654, I.8., J.11)

CONDITION: During the collection of soil, water, and vegetation samples, Field Monitoring Team 2 placed the collected samples inside the team vehicle before performing radiation surveys of the packaged samples as specified in Arkansas Department of Health sample collection guidelines, section B.1 of Procedure ER-05.2.

POSSIBLE CAUSE: The cause was a lack of awareness of the survey requirement or an oversight by the health physicist who collected the samples.

REFERENCE: NUREG-0654, I.8; Section B.1 of Arkansas Department of Health Procedure ER-05.2.

EFFECT: If the radioactive material in the samples had abnormally high radiation levels, placing the samples inside the team vehicle for transport before first surveying them could have caused increased radiation exposure to personnel riding in the vehicle.

CORRECTIVE ACTION DEMONSTRATED: The omission of this survey was brought to the attention of the health physicist. He agreed that the surveys should have been performed and corrected the condition on the spot by performing the surveys immediately.

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

## 4.2.1.6. Arkansas Nuclear One Emergency News Center

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

ISSUE NO.: 01-08-5b1-A-02

ISSUE: 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: Media Release #6, which announced the General Emergency (GE) classification and the beginning of the release of radioactive material, was not issued in a timely manner. One hour and twenty-two minutes

elapsed between the announcement of the release and the GE and the fax of Media Release #6 to the Alternate Joint Information Center (JIC). Issuance of this Media Release lagged that of an Entergy News Release describing the same condition by fifty-five minutes.

**POSSIBLE CAUSE:** The Alternate JIC inappropriately tasked the Public Information Officer (PIO) in the Emergency News Center (ENC) with correcting typographic errors on three previously issued Media Releases, causing an excessive delay in the construction of the important Media Release describing the GE and the beginning of the radiological release.

**REFERENCE:** NUREG-0654 Planning Standard G.4.b (Each organization shall establish arrangements for timely exchange of information among designated spokespersons.)

**EFFECT:** Delay in issuance of this important Media release could create a credibility problem for Arkansas Department of Health (ADH) with the intended media audience, impeding the flow of important emergency information.

**RECOMMENDATION:** Provide electronic copies of the issued Media Releases to the Alternate JIC staff with procedural direction for them to unilaterally correct minor errors themselves without impacting the timeliness of pending Media Releases.

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

#### 4.2.1.7. Alternate 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

## 4.2.2. Risk Jurisdictions

### 4.2.2.1. Johnson County Emergency Operations Center and Traffic/Access Control Point

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

ISSUE NO.: 01-08-3b1-A-03

ISSUE: KI and appropriate instructions are available should a decision to recommend use of KI be made. Appropriate record keeping of the admin of KI for emergency workers and institutionalized individuals (not general public) is maintained. (NUREG-0654, E.7., J.10.e.f.)

CONDITION: The Radiological Officer (RO) did not verbally review the KI ingestion/reactions/tracking information with the emergency worker.

POSSIBLE CAUSE: The Radiological Officer had not received refresher training in several years.

REFERENCE: NUREG 0654, E.7, J.10.e & f.

EFFECT: Emergency workers (EW) may not have ingested the Potassium Iodide (KI) distributed and may have been assigned to a location where there was a potential of radiation exposure.

CORRECTIVE ACTION DEMONSTRATED: The Radiological Officer re-demonstrated the briefing and added the specific KI information for the emergency worker.

- c. DEFICIENCY: None

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

#### 4.2.2.2. Logan County Emergency Operations

##### Center and Traffic/Access Control Point

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

#### 4.2.2.3. Pope County Emergency Operations Center

##### and Traffic/Access Control Point

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

#### 4.2.2.4. Yell County Emergency Operations Center

##### and Traffic/Access Control Point

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

### 4.2.3.1. ENS Radio Station KXRJ

- a. MET: 5.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

## 4.2.4. Federal Jurisdictions

### 4.2.4.1. NOAA North Little Rock

- a. MET: 5.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



# APPENDIX 1

## ACRONYMS AND ABBREVIATIONS

|       |  |
|-------|--|
| AENC  | Alternate Emergency News Center              |
| AJIC  | Alternate Joint Information Center           |
| ANO   | Arkansas Nuclear One                         |
| APB   | Arkansas Plant Board                         |
| ARCA  | Areas Requiring Corrective Action            |
| AWIN  | Arkansas Wireless Information Network        |
| DAL   | Dose Assessment Leader                       |
| DO    | Duty Officer                                 |
| DRD   | Direct Reading Dosimetry                     |
| EAS   | Emergency Alert System                       |
| EBS   | Emergency Broadcast Stations                 |
| ECC   | Emergency Communications Center              |
| ECL   | Emergency Classification Level               |
| EMS   | Emergency Medical Services                   |
| ENC   | Emergency News Center                        |
| ENS   | Emergency Notification System                |
| EOC   | Emergency Operations Center                  |
| EOF   | Emergency Operations Facility                |
| EPA   | Environmental Protection Agency              |
| EPZ   | Emergency Planning Zone                      |
| EWC   | Emergency Worker Center                      |
| FMT   | Field Monitoring Team                        |
| FMTC  | Field Monitoring Team Coordinator            |
| FTC   | Field Team Control                           |
| GE    | General Emergency                            |
| GPS   | Global Positioning System                    |
| HP    | Health Physicist                             |
| IPZ   | Ingestion Planning Zone                      |
| LGL   | Local Government Liaison                     |
| NERN  | Nuclear Emergency Radio Network              |
| NERNS | Nuclear Emergency Response Network System    |
| NRC   | Nuclear Regulatory Commission                |
| ORO   | Offsite Response Organization                |
| PAA   | Protective Action Advisory                   |
| PAD   | Protective Action Decision                   |
| PAG   | Protective Action Guides                     |
| PAZ   | Protective Actions Zones                     |
| PC    | Personal Computers                           |
| PIO   | Public Information Officer                   |
| RAC   | Regional Assistance Committee                |
| RACES | Radio Amateur Communication Emergency System |
| REP   | Radiological Emergency Preparedness          |
| RERT  | Radiological Emergency Response Team         |

|      |                                       |
|------|---------------------------------------|
| RO   | Radiological Officer                  |
| RRTL | Radiological Response Team Leader     |
| SAE  | Site Area Emergency                   |
| SDO  | Staff Duty Officer                    |
| SEOC | State Emergency Operations Center     |
| SEOF | State Emergency Operations Facility   |
| SPB  | State Plant Board                     |
| TC   | Team Chief                            |
| TEDE | Total Effective Dose Equivalent       |
| TOCD | Technical Operations Control Director |
| UHF  | Ultra High Frequency                  |
| VHF  | Very High Frequency                   |
| WP   | Warning Point                         |

## APPENDIX 2

# EXERCISE EVALUATORS AND TEAM LEADERS

DATE: 2008-05-21, SITE: Arkansas Nuclear One, AR

| LOCATION  | EVALUATOR                                       | AGENCY                 |
|---|---|------------------------|
| Arkansas State Emergency Operations Center                                  | *Robert Duggleby                                | ICF                    |
| Arkansas Department of Health, Little Rock Emergency Communications Center  | *James Hickey                                   | ICF                    |
| Arkansas Department of Health at the State Emergency Operations Facility    | *Nan Calhoun<br>William B. McRee                | DHS/FEMA<br>ICF        |
| Arkansas Field Radiological Monitoring Team One                             | *Thomas Essig                                   | ICF                    |
| Arkansas Field Radiological Monitoring Team Two                             | *Earl Shollenberger                             | ICF                    |
| Arkansas Nuclear One Emergency News Center                                  | *Bill Maier                                     | NRC                    |
| Alternate Joint Information Center  | *Bill Bischof<br>Ernie Boaze<br>Rosemary Samsel | DHS/FEMA<br>ICF<br>ICF |
| Johnson County Emergency Operations Center and Traffic/Access Control Point | *Elsa Lopez<br>Michael Petullo                  | DHS/FEMA<br>ICF        |
| Logan County Emergency Operations Center and Traffic/Access Control Point   | Clark Cofer<br>*Al Lookabaugh                   | ICF                    |
| Pope County Emergency Operations Center and Traffic/Access Control Point    | *Walter Gawlak<br>Richard Vaughn                | ICF<br>FAA             |
| Yell County Emergency Operations Center and Traffic/Access Control Point    | Simon Guereca<br>*Frank Stead                   | ICF<br>ICF             |
| ENS Radio Station KXRJ  | *Linda Gee                                      | DHS/FEMA               |
| NOAA North Little Rock  | *James Hickey                                   | ICF                    |
| * Team Leader   |   |                        |

## APPENDIX 3

# EXERCISE EVALUATION AREAS AND EXTENT OF PLAY AGREEMENT

### EVALUATION AREA 1

#### Emergency Operations Management

#### Sub-element 1.a – Mobilization

#### INTENT

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) should have the capability to alert, notify, and mobilize emergency personnel and to activate and staff emergency facilities.

**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)**

**Locations:** State EOC ADEM; Camp Robinson; ADH, Little Rock (ECC only); ADH/SEOF, Russellville; Emergency News Center, Russellville; Alternate Joint Information Center, Little Rock; Pope County EOC, Russellville; Johnson County EOC, Clarksville; Logan County EOC, Paris; Yell County EOC, Danville.

- EOP**
1. ANO will notify the ADH ECC per established procedures. The ECC will follow the instructions of the SDO and/or the TOCD.
  2. Direction and Control will remain with the TOCD who will be pre-deployed to the NP&RP office in Russellville. Alternate JIC personnel will pre-deploy to Freeway Medical Center.
  3. The FRMTs will be pre-deployed at the NP&RP office in Russellville. After activation, teams will stage at the ANG Armory, Russellville. Two teams will go into the field. FRMTs will be directed from the SEOF.
  4. ADH, Little Rock will only be evaluated at the ECC.
  5. No shift change will be performed. A list of second shift Key Personnel will be available for review. A shift change briefing will either be demonstrated by the OROs or the evaluator will interview the ORO to determine the content of the briefing.
  6. The 1<sup>st</sup> shift may be over staffed for training purposes. Some staff identified on the 2<sup>nd</sup> shift roster will play with the 1<sup>st</sup> team. In an actual emergency this over staffing would not be used.

**ARCA:** NONE

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**Sub-element 1.b- Facilities**

**INTENT**

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) have facilities to support the emergency response.

**Criterion 1.b.1: Facilities are sufficient to support the emergency response. (NUREG-0654, H.3)**

**Locations:**<sup>1</sup> Logan County EOC, Paris and ADEM EOC, Camp Robinson.

**EOP:** Both locations are new and have not been evaluated

**ARCA:** None

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**Sub-element 1.c - Direction and Control**

**INTENT**

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) have the capability to control their overall response to an emergency.

**Criterion 1.c.1: Key personnel with leadership roles for the ORO provide direction and control to that part of the overall response effort for which they are responsible. (NUREG-0654, A.1.d; A.2.a, b)**

**Locations:** State EOC ADEM, Camp Robinson; ADH, Little Rock or Russellville; SEOF, Russellville; Pope County EOC, Russellville; Logan County EOC, Paris; Yell County EOC, Danville; Johnson County EOC, Clarksville.

- EOP:**
1. ANO will notify the ADH ECC per established procedures. The ECC will follow the instructions of the SDO and/or the TOCD.
  2. Direction and Control will remain with the TOCD who will be pre-deployed to the NP&RP office in Russellville. The ADH will be evaluated at this location and the SEOF.
  3. When the team deploys from the staging area to the SEOF, Direction and Control will be given to the TOCD located in Little Rock until the SEOF is operational.
  4. ARCA 1.c.1-A-01 will be corrected with a review of LGL forms and LGL actions.

**ARCA: 01-06-1.c.1-A-01: Risk Counties had inadequate information to inform their populations about school evacuations because of the untimely receipt of PAA # 2.**

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<sup>1</sup> This is only for EOCs per FEMA

## Sub-element 1.d – Communications Equipment

### INTENT

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) should establish reliable primary and backup communication systems to ensure communications with key emergency personnel at locations such as the following: appropriate contiguous governments within the emergency planning zone (EPZ), Federal emergency response organizations, the licensee and its facilities, emergency operations centers (EOC), and field teams.

**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)**

**Locations:** State EOC ADEM, Camp Robinson; ADH, Little Rock (ECC only); ADH/SEOF, Russellville; State Field Radiological Monitoring Teams (FRMT), Russellville; Emergency News Center, Russellville; Alternate Joint Information Center, Little Rock; Pope County EOC, Russellville; Johnson County EOC, Clarksville; Logan County EOC, Paris; Yell County EOC, Danville.

- EOP:**
1. ADH, Little Rock will only be evaluated at the ECC. (Note: ECC procedures may differ from actions because of pre-staging)
  2. Each location will demonstrate the use of one primary and one backup communications system and be prepared to discuss backup alternate communication systems. Each location will identify a communications system that is independent of the commercial telephone system.

**ARCA:** None

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## Sub-element 1.e – Equipment and Supplies to Support Operations

### INTENT

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) have emergency equipment and supplies adequate to support the emergency response.

**Criterion 1.e.1: Equipment, maps, displays, Dosimetry, potassium iodide (KI), and other supplies are sufficient to support emergency operations. (NUREG-0654, H.7, 10; J.10.a, b, e, J.11; K.3.a)**

**Locations:** State EOC ADEM, Camp Robinson; ADH, Little Rock (ECC only); ADH/SEOF, Russellville; State Field Radiological Monitoring Teams (FRMT), Russellville; Emergency News Center, Russellville; Alternate Joint Information Center, Little Rock; Pope County EOC, Russellville; Johnson County EOC, Clarksville; Logan County EOC, Paris; Yell County EOC, Danville.

- EOP:**
1. ADH, Russellville will only be evaluated at the SEOF.
  2. ADH, Little Rock will only be evaluated at the ECC.

3. Exposure control and monitoring will be under the control of ANO at the SEOF, the Russellville ENC, and Russellville Rumor Control. ANO will perform habitability determination using meters and area monitoring. Dosimetry will not routinely be issued to SEOF personnel.
4. It is Arkansas policy to issue KI only to Emergency Workers (EW) and institutionalized individuals. KI is not issued to the general public.
5. If the plume does not require a KI decision, the county EOCs can satisfy this EA by interview.
6. Meters or DRDs that have "bar code" labels can have their calibration and operational check dates verified with the master database maintained by the NP&RP HP.
7. The quantities of Dosimetry and the quantities and expiration of KI will be confirmed by evaluators at locations identified in plans.
8. The availability of TACP equipment will be described through interview at Counties where TACP personnel are deployed.

ARCA: None

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## EVALUATION AREA 2

### Protective Action Decision-Making

#### Sub-element 2.a - Emergency Worker Exposure Control

#### INTENT

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) have the capability to assess and control the radiation exposure received by emergency workers and have a decision chain in place, as specified in the ORO's plans and procedures, to authorize emergency worker exposure limits to be exceeded for specific missions.

Radiation exposure limits for emergency workers are the recommended accumulated dose limits or exposure rates that emergency workers may be permitted to incur during an emergency. These limits include any pre-established administrative reporting limits (that take into consideration Total Effective Dose Equivalent or organ-specific limits) identified in the ORO's plans and procedures.

**Criterion 2.a.1: OROs use a decision-making process, considering relevant factors and appropriate coordination, to ensure that an exposure control system, including the use of KI, is in place for emergency workers including provisions to authorize radiation exposure in excess of administrative limits or protective action guides. (NUREG-0654, K.4, J.10. e, f)**

**Locations: SEOF, Russellville; Pope County EOC, Russellville; Johnson County EOC, Clarksville; Logan County EOC, Paris; Yell County EOC, Danville.**

**EOP: 1. Exposure control and monitoring will be under the control of ANO at SEOF. ANO will perform habitability determination using meters and area monitoring.**

**Dosimetry will be available to deploying personnel when appropriate.**

- 2. State FRMTs will use gloves as necessary. Access to "anti-C's" will be demonstrated; however, they will not be worn. After the termination of the exercise FMRT members will be prepared to demonstrate the donning and removal of "anti-C's". Respiratory protection will NOT be used.**
- 3. At the county EOCs, the RO will demonstrate the EW briefing, record keeping, and procedures for issuing and returning Dosimetry and KI.**
- 4. It is Arkansas policy to issue KI only to Emergency Workers (EW) and institutionalized individuals. KI is not issued to the general public.**
- 5. If the plume does not require a KI decision, the county EOCs can satisfy this EA by interview.**

**ARCA: None**

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**Sub-element 2.b. - Radiological Assessment and Protective Action Recommendations and Decisions for the Plume Phase of the Emergency**

**INTENT**

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) have the capability to independently project integrated dose from exposure rates or other information and compare the estimated dose savings with the protective action guides. OROs have the capability to choose, among a range of protective actions, those most appropriate in a given emergency situation. OROs base these choices on PAGs from the ORO's plans and procedures or EPA 400-R-92-001 and other criteria, such as, plant conditions, licensee protective action recommendations, coordination of protective action decisions with other political jurisdictions (e.g., other affected OROs), availability of appropriate in-place shelter, weather conditions, evacuation time estimates, and situations that create higher than normal risk from evacuation.

**Criterion 2.b.1: Appropriate protective action recommendations are based on available information on plant conditions, field monitoring data, and licensee and ORO dose projections, as well as knowledge of onsite and offsite environmental conditions. (NUREG-0654, I.8, 10 and Supplement 3)**

**Locations: SEOF, Russellville.**

**EOP: Dose Projections will be made per procedures using a combination of RASCAL and RDACS. RASCAL will be the primary model used to make projections based on "plant conditions". Once RDACS outputs are determined to adequately represent the plume, it will be used as the primary model.**

**ARCA: None**

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**Criterion 2.b.2: A decision-making process involving consideration of appropriate factors and necessary coordination is used to make protective action decisions (PAD) for the general public (including the recommendation for the use of KI, if ORO policy). (NUREG-0654, J.9, 10.f,m)**

**Locations:**<sup>2</sup> Pope County EOC, Russellville; Johnson County EOC, Clarksville; Logan County EOC, Paris; Yell County, EOC, Danville.

- EOP:**
1. It is Arkansas policy to issue KI only to Emergency Workers (EW) and institutionalized individuals. KI is not issued to the general public.
  2. Use of KI by EWs will be simulated.
  3. If the plume does not require a KI decision, the county EOCs can satisfy this EA by interview.

**ARCA:** None

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

**INTENT**

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) should have the capability to determine protective action recommendations, including evacuation, sheltering and use of potassium iodide (KI), if applicable, for special population groups (e.g., hospitals, nursing homes, correctional facilities, schools, licensed day care centers, mobility impaired individuals, and transportation dependent individuals). Focus is on those special population groups that are (or potentially will be) affected by a radiological release from a nuclear power plant.

**Criterion 2.c.1: Protective action decisions are made, as appropriate, for special population groups. (NUREG-0654, J.9, J.10.d,e)**

**Locations:** Pope County EOC, Russellville; Johnson County EOC, Clarksville; Logan County EOC, Paris; Yell County EOC, Danville.

**EOP:** Lists and procedures will be demonstrated. Actions will be simulated.

**ARCA:** None

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<sup>2</sup> SEOF will be evaluated on 2.a.1

**Sub-element 2.d. –Radiological Assessment and Decision-Making for the Ingestion Exposure Pathway**

**INTENT**

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) have the means to assess the radiological consequences for the ingestion exposure pathway, relate them to the appropriate PAGs, and make timely, appropriate protective action decisions to mitigate exposure from the ingestion pathway.

During an accident at a nuclear power plant, a release of radioactive material may contaminate water supplies and agricultural products in the surrounding areas. Any such contamination would likely occur during the plume phase of the accident and, depending on the nature of the release, could impact the ingestion pathway for weeks or years.

**Criterion 2.d.1: Radiological consequences for the ingestion pathway are assessed and appropriate protective action decisions are made based on the ORO's planning criteria. (NUREG-0654, J.11)**

**Locations: SEOF, Russellville.**

- EOP:**
- 1. All field sampling data will be pre-scripted and provided to appropriate players by controllers.**
  - 2. This objective will be demonstrated in concert with the FRMAC and the A-Team**
  - 3. The State Dose Assessment Team will demonstrate the ability to assess sample data with regards to ingestion pathway PAGs independently of the scenario.**
  - 4. The FRMAC will present its assessment of the sample data.**
  - 5. The A-Team will take the FRMAC sample results and develop recommendations.**
  - 6. The FRMAC, and the A-Team will brief their results to the TOCD and his support staff. The TOCD staff will develop PAAs for dissemination to the County EOCs in the EPZ counties and in the effected IPZ counties.**
  - 7. At a prearranged time TBD, (approximately 8:00 a.m.) on exercise day two, the TOCD or his designee will brief the county EOCs via a conference call or alternate communications link. The participating counties will be staffed, at a minimum, with the following positions: County Judge or his representative, Emergency Services Coordinator, and a law enforcement representative. All counties will be briefed and areas of concern will be discussed. Counties will discuss relocation, re-entry, return, and resource issues as they pertain to their individual locations. Counties that are impacted by the scenario deposition will have more extensive play. NO SIMULATED PLAY WILL BE GENERATED FOR COUNTIES NOT EFFECTED BY THE SCENARIO. HOWEVER, ALL COUNTIES ARE ENCOURAGED TO REMAIN IN CONTACT WITH THE SEOF AND "OBSERVE" THE ACTIVITIES OF THE IMPACTED COUNTIES.**

**ARCA: None**

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**Sub-element 2.e. – Radiological Assessment and Decision-Making Concerning Relocation, Re-entry, and Return**

**INTENT**

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) have the capability to make decisions on relocation, re-entry, and return of the general public. These decisions are essential for the protection of the public from the direct long-term exposure to deposited radioactive materials from a severe accident at a nuclear power plant.

**Criterion 2.e.1: Timely relocation, re-entry, and return decisions are made and coordinated as appropriate, based on assessments of the radiological conditions and criteria in the ORO's plan and/or procedures. (NUREG-0654, I.10; M.1)**

**Locations: SEOF, Russellville, Pope County EOC, Russellville, Johnson County EOC, Clarksville; Logan County EOC, Paris; Yell County EOC, Danville.**

**EOP:**

1. This objective will be demonstrated in concert with the FRMAC and the A-Team
2. The State Dose Assessment Team will demonstrate the ability to assess sample data with regards to relocation PAGs independently of the scenario.
3. The FRMAC will present its assessment of the sample data.
4. The A-Team will take the FRMAC sample results and develop recommendations.
5. The FRMAC, and the A-Team will brief their results to the TOCD and his support staff. The TOCD staff will develop PAAs for dissemination to the County EOCs in the EPZ counties and in the effected IPZ counties.
6. The County Judges or their representatives will demonstrate the decision-making requirements of this objective from their respective counties.
7. At a prearranged time TBD, (approximately 8:00 a.m.) on exercise day two, the TOCD or his designee will brief the county EOCs via a conference call or alternate communications link. The participating counties will be staffed, at a minimum, with the following positions: County Judge or his representative, Emergency Services Coordinator, and a law enforcement representative. All counties will be briefed and areas of concern will be discussed. Counties will discuss relocation, re-entry, return, and resource issues as they pertain to their individual locations. Counties that are impacted by the scenario deposition will have more extensive play. **NO SIMULATED PLAY WILL BE GENERATED FOR COUNTIES NOT EFFECTED BY THE SCENARIO. HOWEVER, ALL COUNTIES ARE ENCOURAGED TO REMAIN IN CONTACT WITH THE SEOF AND "OBSERVE" THE ACTIVITIES OF THE IMPACTED COUNTIES.**

**ARCA: None**

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## EVALUATION AREA 3

### Protective Action Implementation

#### Sub-element 3.a – Implementation of Emergency Worker Exposure Control

##### INTENT

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to provide for the following: distribution, use, collection, and processing of direct-reading Dosimetry and permanent record Dosimetry; the reading of direct-reading Dosimetry by emergency workers at appropriate frequencies; maintaining a radiation dose record for each emergency worker; and establishing a decision chain or authorization procedure for emergency workers to incur radiation exposures in excess of protective action guides, always applying the ALARA (As Low As is Reasonably Achievable) principle as appropriate.

**Criterion 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.a,b)**

**Locations:** SEOF, Russellville; State Field Radiological Monitoring Teams (FRMT), Russellville; Pope County EOC, Russellville; Johnson County EOC, Clarksville; Logan County EOC, Paris; Yell County EOC, Danville.

- EOP:**
1. Exposure control and monitoring will be under the control of ANO at SEOF. Dosimetry will be available to deploying personnel when appropriate.
  2. State FRMTs will use gloves as necessary. Access to "anti-C's" will be demonstrated; however, they will not be worn. After the termination of the exercise FMRT members will be prepared to demonstrate the donning and removal of "anti-C's". Respiratory protection will NOT be used.
  3. At the county EOCs, the RO will demonstrate the EW briefing, record keeping, and procedures for issuing and returning Dosimetry and KI.
  4. Correction-on-the-spot will be considered at these locations at the discretion of and concurrence between the evaluator and the controller. Caution should be exercised to ensure that exercise play is not interrupted.

**ARCA:** NONE

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**Sub-element 3.b – Implementation of KI Decision**

**INTENT**

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) should have the capability to provide radio protective drugs for emergency workers, institutionalized individuals, and, if in the plan and/or procedures, to the general public for whom immediate evacuation may not be feasible, very difficult, or significantly delayed. While it is necessary for OROs to have the capability to provide KI to emergency workers and institutionalized individuals, the provision of KI to the general public is an ORO option and is reflected in ORO's plans and procedures. Provisions should include the availability of adequate quantities, storage, and means of the distribution of radio protective drugs.

**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, J. 10. e)**

**Locations:** Pope County EOC, Russellville, Johnson County EOC, Clarksville; Logan County EOC, Paris; Yell County EOC, Danville; State Field Radiological Monitoring Teams (FRMT), Russellville; SEOF, Russellville.

- EOP:**
1. It is Arkansas policy to issue KI only to Emergency Workers (EW) and institutionalized individuals. KI is not issued to the general public.
  2. Use of KI by EWs will be simulated.
  3. If the plume does not require a KI decision, the county EOCs can satisfy this EA by interview.

**ARCA:** None

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**Sub-element 3.c – Implementation of Protective Actions for Special Populations**

**INTENT**

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) should have the capability to implement protective action decisions, including evacuation and/or sheltering, for all special populations. Focus is on those special populations that are (or potentially will be) affected by a radiological release from a nuclear power plant.

**Criterion 3.c.1: Protective action decisions are implemented for special populations other than schools within areas subject to protective actions. (NUREG-0654, J.10.c,d,g)**

**Locations:** Pope County EOC, Russellville; Johnson County EOC, Clarksville; Logan County EOC, Paris; Yell County EOC, Danville.

**EOP:** Lists and procedures will be demonstrated. Actions will be simulated.

**ARCA:** None

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**Criterion 3.c.2: OROs/School officials decide upon and implement protective actions for schools. (NUREG-0654, J.10.c, d, g)**

**Locations:** None

**EOP:**

**ARCA:** None

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**Sub-element 3.d. – Implementation of Traffic and Access Control**

**INTENT**

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) have the capability to implement protective action plans, including relocation and restriction of access to evacuated/sheltered areas. This sub-element focuses on selecting, establishing, and staffing of traffic and access control points and removal of impediments to the flow of evacuation traffic.

**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)**

**Locations:** Pope County EOC, Russellville; Logan County EOC, Paris; Yell County EOC, Danville; Johnson County EOC, Clarksville.

**EOP:**

1. The RO will issue Dosimetry, KI and brief the Deputy assigned to the T/ACP as appropriate. The Deputy will not drive to the location. The Deputy will talk through the T/ACP, monitoring, and EW exposure control procedures.
2. Correction-on-the-spot will be considered at these locations at the discretion of and concurrence between the evaluator and the controller. Caution should be exercised to ensure that exercise play is not interrupted.

**ARCA:** None

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**Criterion 3.d.2: Impediments to evacuation are identified and resolved. (NUREG-0654, J.10.k)**

**Locations:** Pope County EOC, Russellville; Logan County EOC, Paris; Yell County EOC, Danville; Johnson County EOC, Clarksville.

**EOP:** The EOC representative will talk through the procedures that demonstrate the capability to identify and take appropriate actions concerning impediments to evacuation. This discussion will be initiated by a controller input. Actual dispatch of resources will not take place.

**ARCA:** None

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**Sub-element 3.e – Implementation of Ingestion Pathway Decisions**

**INTENT**

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to implement protective actions, based on criteria recommended by current Food and Drug Administration guidance, for the ingestion pathway zone (IPZ), the area within an approximate 50-mile radius of the nuclear power plant. This sub-element focuses on those actions required for implementation of protective actions.

**Criterion 3.e.1: The ORO demonstrates the availability and appropriate use of adequate information regarding water, food supplies, milk, and agricultural production within the ingestion exposure pathway emergency planning zone for implementation of protective actions. (NUREG-0654, J.9, 11)**

**Locations:** SEOF, Russellville.

**EOP:**

1. This objective will be demonstrated in concert with the FRMAC and the A-Team.
2. The State Dose Assessment Team will demonstrate the ability to assess sample data with regards to ingestion pathway PAGs independently of the scenario.
3. The FRMAC will present its assessment of the sample data.
4. The A-Team will take the FRMAC sample results and develop recommendations.
5. The FRMAC, and the A-Team will brief their results to the TOCD and his support staff. The TOCD staff will develop PAAs for dissemination to the County EOCs in the EPZ counties and in the effected IPZ counties.
6. The ADEM and State Agencies supporting ADEM will have representatives at the SEOF. They will demonstrate this objective in this capacity.
7. At a prearranged time TBD, (approximately 8:00 a.m.) on exercise day two, the TOCD or his designee will brief the county EOCs via a conference call or alternate communications link. The participating counties will be staffed, at a minimum, with the following positions: County Judge or his representative, Emergency Services Coordinator, and a law enforcement representative. All counties will be briefed and areas of concern will be discussed. Counties will discuss relocation, re-entry, return, and resource issues as they pertain to their individual locations. Counties that are impacted by the scenario deposition will have more extensive play. **NO SIMULATED PLAY WILL BE GENERATED FOR COUNTIES NOT EFFECTED BY THE SCENARIO. HOWEVER, ALL COUNTIES ARE ENCOURAGED TO REMAIN IN CONTACT WITH THE SEOF AND "OBSERVE" THE ACTIVITIES OF THE IMPACTED COUNTIES.**

**ARCA:** None

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**Criterion 3.e.2: Appropriate measures, strategies, and pre-printed instructional material are developed for implementing protective action decisions for contaminated water, food products, milk, and agricultural production. (NUREG-0654, J.9, 11)**

**Locations:** SEOF, Russellville.

**EOP:** 1. Information presented in the EIB in conjunction with a "camera ready"

brochure (available for review) will meet the criteria requirements.

2. Additional verbal or written information, will be simulated
3. The ADEM and State Agencies supporting ADEM will have representatives at the SEOF. They will demonstrate this objective in this capacity.

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### Sub-element 3.f – Implementation of Relocation, Re-entry, and Return Decisions

#### INTENT

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) should demonstrate the capability to implement plans, procedures, and decisions for relocation, re-entry, and return. Implementation of these decisions is essential for the protection of the public from the direct long-term exposure to deposited radioactive materials from a severe accident at a commercial nuclear power plant.

**Criterion 3.f.1: Decisions regarding controlled re-entry of emergency workers and relocation and return of the public are coordinated with appropriate organizations and implemented. (NUREG-0654, M.1, 3)**

**Locations:** SEOF, Russellville; Pope County EOC, Russellville; Johnson County EOC, Clarksville; Logan County EOC, Paris; Yell County EOC, Danville.

#### EOP:

1. This objective will be demonstrated in concert with the FRMAC and A-Team.
2. The State Dose Assessment Team will demonstrate the ability to assess sample data with regards to ingestion pathway PAGs independently of the scenario.
3. The FRMAC will present its assessment of the sample data.
4. The A-Team will take the FRMAC sample results and develop recommendations.
5. The FRMAC, and the A-Team will brief their results to the TOCD and his support staff. The TOCD staff will develop PAAs for dissemination to the County EOCs in the EPZ counties and in the effected IPZ counties.
6. The County Judges or their representatives will demonstrate the decision-making requirements of this objective from their respective counties.
7. At a prearranged time TBD, (approximately 8:00 a.m.) on exercise day two, the TOCD or his designee will brief the county EOCs via a conference call or alternate communications link. The participating counties will be staffed, at a minimum, with the following positions: County Judge or his representative, Emergency Services Coordinator, and a law enforcement representative. All counties will be briefed and areas of concern will be discussed. Counties will discuss relocation, re-entry, return, and resource issues as they pertain to their individual locations. Counties that are impacted by the scenario deposition will have more extensive play. **NO SIMULATED PLAY WILL BE GENERATED FOR COUNTIES NOT EFFECTED BY THE SCENARIO. HOWEVER, ALL COUNTIES ARE ENCOURAGED TO REMAIN IN CONTACT WITH THE SEOF AND "OBSERVE" THE ACTIVITIES OF THE IMPACTED COUNTIES.**



8. The ADEM and State Agencies supporting ADEM will have representatives at the SEOF. They will demonstrate this objective in this capacity.

ARCA: None

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#### EVALUATION AREA 4

##### Field Measurement And Analysis

##### Sub-element 4.a – Plume Phase Field Measurements and Analyses

###### INTENT

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) should have the capability to deploy field teams with the equipment, methods, and expertise necessary to determine the location of airborne radiation and particulate deposition on the ground from an airborne plume. In addition, NUREG-0654 indicates that OROs should have the capability to use field teams within the plume emergency planning zone to measure airborne radioiodine in the presence of noble gases and to measure radioactive particulate material in the airborne plume.

In the event of an accident at a nuclear power plant, the possible release of radioactive material may pose a risk to the nearby population and environment. Although accident assessment methods are available to project the extent and magnitude of a release, these methods are subject to large uncertainties. During an accident, it is important to collect field radiological data in order to help characterize any radiological release. This does not imply that plume exposure projections should be made from the field data. Adequate equipment and procedures are essential to such field measurement efforts.

**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.7, 8, 9)**

**Locations:** FRMT, Russellville.

- EOP:**
1. State FRMTs will follow the ALARA Policy of the Arkansas Department of Health. Teams will not routinely traverse a plume. State Teams will define the edge of the plume. Air Samples will be taken in areas reading near 20 mR/hr or as directed.
  2. Air samples will not be transported to the laboratory.
  3. Charcoal canisters will be used instead of Silver Zeolite. Silver Zeolite canisters will be available for evaluator review.
  4. Air samplers will not be purged.

5. Sealed kits do not have to be inventoried. However, FRMTs can inventory them if they want. FRMTs may be asked to describe all procedures not demonstrated.
6. Two teams will be deployed to the field
7. Correction-on-the-spot will be considered at these locations at the discretion of and concurrence between the evaluator and the controller. Caution should be exercised to ensure that exercise play is not interrupted.

ARCA: None

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Criterion 4.a.2: Field teams are managed to obtain sufficient information to help characterize the release and to control radiation exposure. (NUREG-0654, H.12; I.8, 11; J.10.a)

Locations: SEOF, Russellville.

- EOP:
1. State FRMTs will follow the ALARA Policy of the Arkansas Department of Health. Teams will not routinely traverse a plume. State Teams will define the edge of the plume. Air samples will be taken in areas reading near 20 mR/hr or as directed.
  2. Air samples will not be transported.
  3. Correction-on-the-spot will be considered at these locations at the discretion of and concurrence between the evaluator and the controller. Caution should be exercised to ensure that exercise play is not interrupted.

ARCA: None

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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. 9)

Locations: FRMT, Russellville.

- EOP:
1. State FRMTs will follow the ALARA Policy of the Arkansas Department of Health. Teams will not routinely traverse a plume. State Teams will define the edge of the plume. Air Samples will be taken in areas reading near 20 mR/hr or as directed.
  2. Air samples will not be transported to the laboratory.
  3. Charcoal canisters will be used instead of Silver Zeolite.
  4. Air samplers will not be purged.

5. FRMTs may be asked to describe all procedures not demonstrated.
6. Correction-on-the-spot will be considered at these locations at the discretion of and concurrence between the evaluator and the controller. Caution should be exercised to ensure that exercise play is not interrupted.

ARCA: None

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#### Sub-element 4.b – Post Plume Phase Field Measurements and Sampling

##### INTENT

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to assess the actual or potential magnitude and locations of radiological hazards in the IPZ and for relocation, re-entry and return measures.

This sub-element focuses on the collection of environmental samples for laboratory analyses that are essential for decisions on protection of the public from contaminated food and water and direct radiation from deposited materials.

**Criterion 4.b.1: The field teams demonstrate the capability to make appropriate measurements and to collect appropriate samples (e.g., food crops, milk, water, vegetation, and soil) to support adequate assessments and protective action decision-making. (NUREG-0654, I.8; J.11)**

Locations: State FRMTs, Russellville

##### EOP:

1. The State will deploy two FRMTs. Each team will take at least one sample of the following: water, vegetation, and soil. Scenario sample locations will be determined by the Field Team Coordinator. Actual sampling points will be predetermined. These points will not be scenario driven and may not be in the "plume footprint". Field teams will not be given these sample locations in advance and must demonstrate the ability to drive to the proper location. These locations will be considered "contaminated" and field teams will use proper procedures. One out-of-sequence sample will be taken of milk at a designated location. Since these samples are out of sequence, there will be no controller inject identifying sample results.
2. Samples will be transported to the Armory by the teams to demonstrate "chain of custody" procedures.
3. Sample receipt procedures will be demonstrated at the staging area
4. Samples will not be transported to the laboratory in Little Rock.

ARCA: None

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## Sub-element 4.c - Laboratory Operations

### INTENT

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) should have the capability to perform laboratory analyses of radioactivity in air, liquid, and environmental samples to support protective action decision-making.

**Criterion 4.c.1: The laboratory is capable of performing required radiological analyses to support protective action decisions. (NUREG-0654, C.3; J.11)**

**Locations:** State Laboratory, Little Rock.

**EOP:** The State Laboratory, Little Rock will not demonstrate this objective during this exercise. This objective will be demonstrated during a drill in October 2008

**ARCA:** None

## EVALUATION AREA 5

### Emergency Notification and Public Information

#### Sub-element 5.a – Activation of the Prompt Alert and Notification System

### INTENT

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to provide prompt instructions to the public within the plume pathway EPZ. Specific provisions addressed in this sub-element are derived from the Nuclear Regulatory Commission (NRC) regulations (10 CFR Part 50, Appendix E.IV.D.), and FEMA-REP-10, "Guide for the Evaluation of Alert and Notification systems for Nuclear Power Plants."

**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.IV.D and NUREG-0654, E.5, 6,7)**

**Locations:** SEOF, Russellville; KXRJ, Russellville; NOAA, NLR.

- EOP:**
- 1. No sirens will sound and local radio messages and National Oceanic and Atmospheric Administration (NOAA) messages will NOT BE BROADCAST. In Arkansas the County Judge is the decision maker for protective actions. The TOCD only recommends actions. Since, the State does the "alert and notification" the State must wait until the final Judge makes a decision to agree with the recommendation before the "alert and notification" begins.**
  - 2. Local radio message simulation will be demonstrated at Radio Station KXRJ in Russellville.**
  - 3. NOAA message simulation will be demonstrated at the National Weather Service Forecast Office, North Little**

Rock. Any real emergency will take precedence.

4. Route Alerting is not a Primary ANS method. It will not be demonstrated. Backup route alerting will be discussed if appropriate.

ARCA: None

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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)

- EOP
1. There are no FEMA approved exception areas,
  2. Backup alert and notification will be in accordance with plans and procedures.

ARCA: None

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#### Sub-element 5.b – Emergency Information and Instructions for the Public and the Media

##### INTENT

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) should have the capability to disseminate to the public appropriate emergency information and instructions, including any recommended protective actions. In addition, NUREG-0654 provides that OROs should ensure that the capability exists for providing information to the media. This includes the availability of a physical location for use by the media during an emergency. NUREG-0654 also provides that a system should be available for dealing with rumors. This system will hereafter be known as the public inquiry hotline.

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.c)

Locations: SEOF, Russellville; Emergency News Center, Russellville; Alternate Joint Information Center, Little Rock.

##### EOP:

1. Media kits will be provided by Entergy.
2. Rumor Control activity is staffed by ANO employees IAW Entergy (on-site) plans and procedures.
3. The JIC and Rumor Control will be in Little Rock. They will pre-stage!
4. County Representation at the JIC will be through the ENC Liaison position. County personnel will not be at the JIC.
5. Controller injects for the following questions identified in the Region VI "white paper" will be prepared:
  - a. What protective actions have been ordered?

- b. Why should the EPZs be evacuated?
- c. Why should citizens go to the reception center? Can they evacuate to relatives' or friends' homes?
- d. If sheltering is ordered, is it safe?
- e. What will happen if someone is exposed to radiation? What are the symptoms? What will happen if they are decontaminated?
- f. Is there a place to put my pets? What should I bring for them?
- g. How much feed and water should I leave for my livestock? How long will I be gone? How and when will I know if they have been effected by radiation.
- h. Will prisons and jails be evacuated?
- i. How are people who can't evacuate by themselves be taken care of? Who is going to get them?
- j. Who will notify traffic on rivers and lakes? Who will stop them from going into contaminated areas?

If this subject material is not covered by news releases, press briefings, or other questions; controllers will ask these questions.

6. Day two activities will be demonstrated at the ENC. This will be limited to demonstrating getting information to public concerning decisions made during the RRR and IPX portion of the exercise.

ARCA: NONE

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## EVALUATION AREA 6

### Support Operation/Facilities

#### Sub-element 6.a – Monitoring and Decontamination of Evacuees and Emergency Workers and Registration of Evacuees

##### INTENT

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) have the capability to implement radiological monitoring and decontamination of evacuees and emergency workers, while minimizing contamination of the facility, and registration of evacuees at reception centers.

**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; J.12; K.5.a)**

Locations: None

EOP: This will be demonstrated in October 2008

ARCA: 01-06-6.a.1-A-03: Provide check source and training on the setup of portal monitors.

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#### Sub-element 6.b – Monitoring and Decontamination of Emergency Worker Equipment

## INTENT

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) have the capability to implement radiological monitoring and decontamination of emergency worker equipment, including vehicles.

**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)**

**Locations: None**

**EOP: This will be demonstrated in October 2008.**

**ARCA: None**

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## Sub-element 6.c - Temporary Care of Evacuees

### INTENT

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) demonstrate the capability to establish relocation centers in host areas. Congregate care is normally provided in support of OROs by the American Red Cross (ARC) under existing letters of agreement.

**Criterion 6.c.1: Managers of congregate care facilities demonstrate that the centers have resources to provide services and accommodations consistent with American Red Cross planning guidelines. (Found in MASS CARE - Preparedness Operations, ARC 3031) Managers demonstrate the procedures to assure that evacuees have been monitored for contamination and have been decontaminated as appropriate prior to entering congregate care facilities. (NUREG-0654, J.10.h, J.12)**

**Locations: None**

**EOP: This EA will be demonstrated in October 2008**

**ARCA: None**

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## Sub-element 6.d - Transportation and Treatment of Contaminated Injured Individuals

### INTENT

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) should have the capability to transport contaminated injured individuals to medical facilities with the capability to provide medical services.

**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)**

**Locations: None**

**EOP: This will be demonstrated in October 2008.**

**ARCA: None**

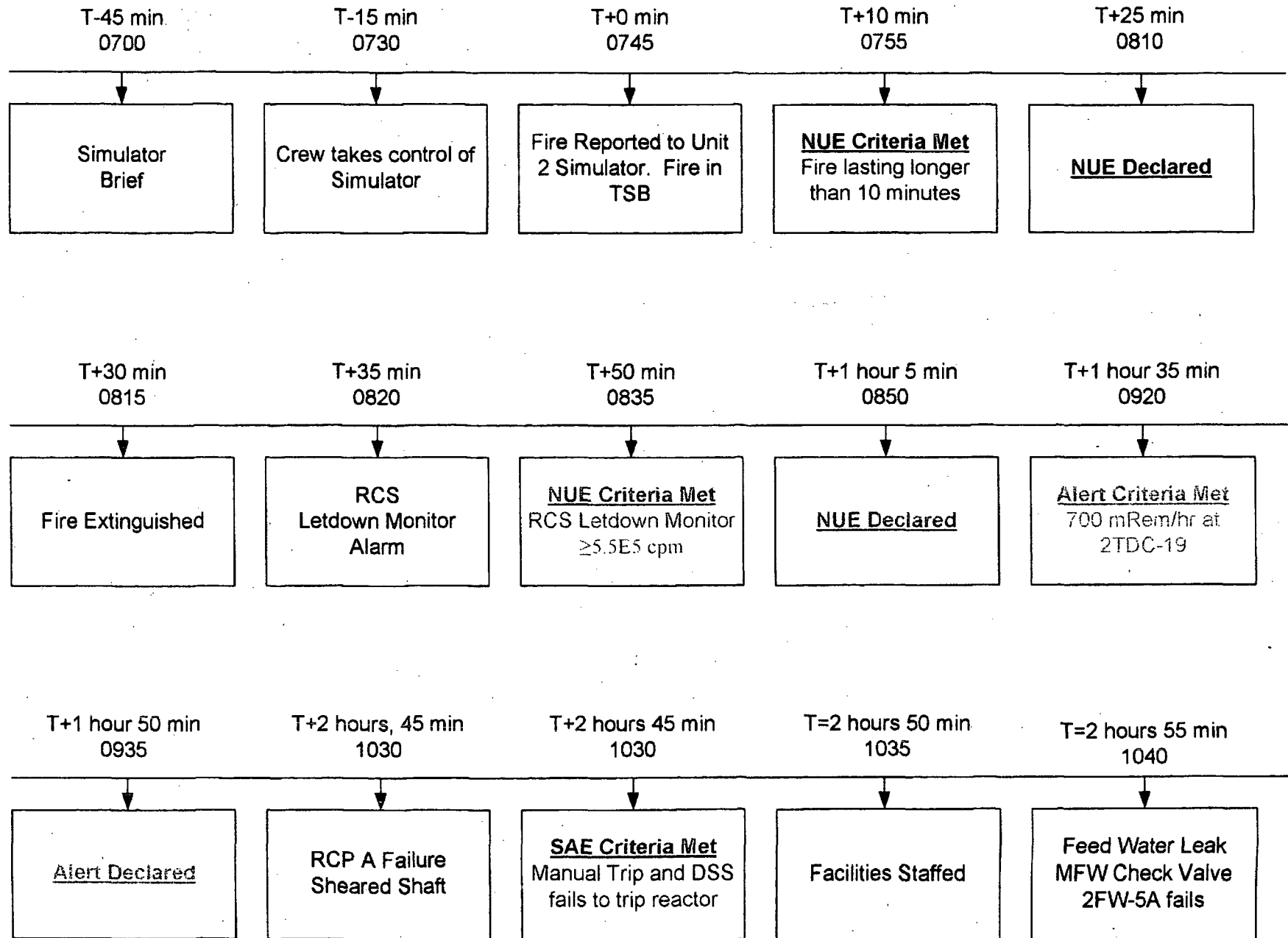
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APPENDIX 4  
EXERCISE SCENARIO AND TIMELINE

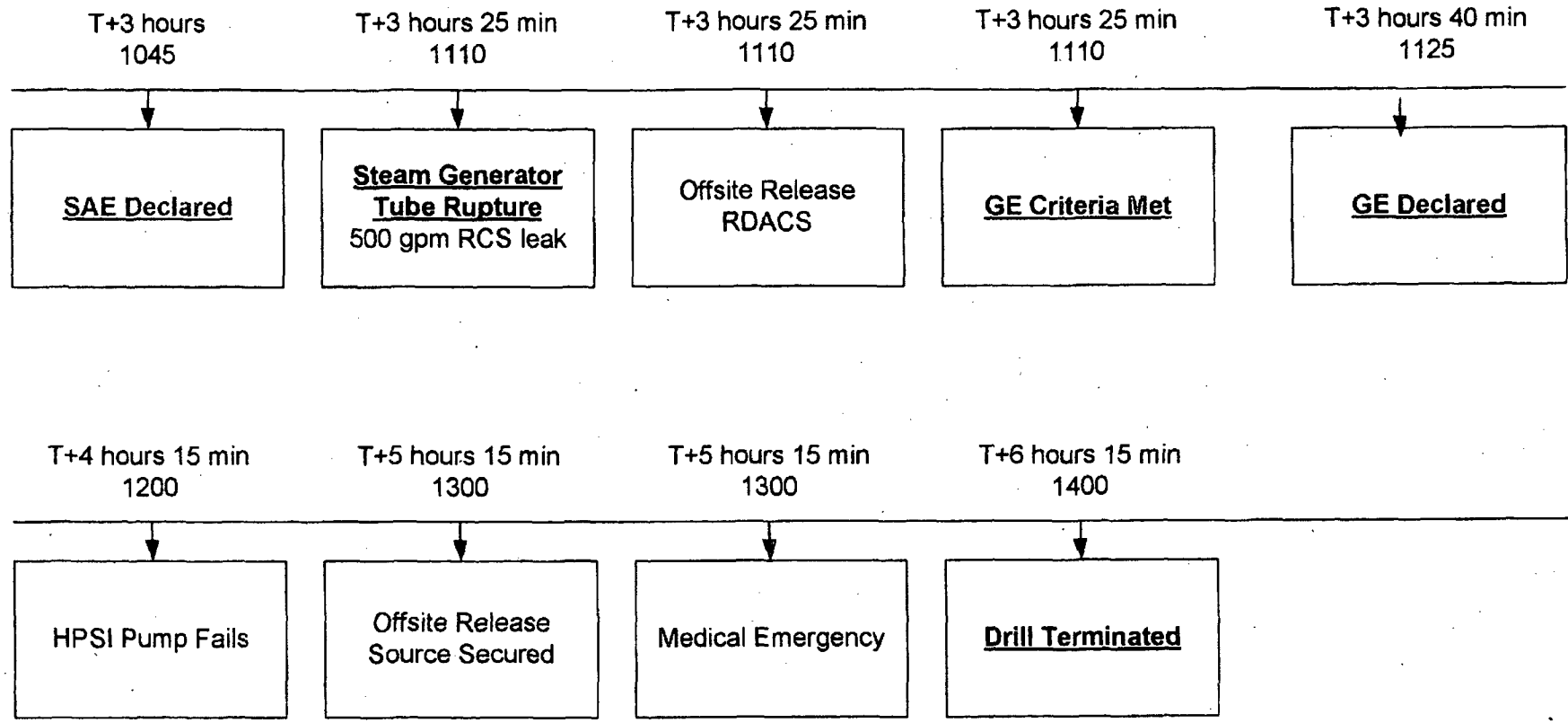
Detailed Timeline and Scenario  
Overview



# Time Line



Time Line



## DETAILED DESCRIPTION OF EVENTS

This section contains a chronological listing of major scenario events and anticipated responses. It is intended for use as an aid for effective placement of controllers, evaluators and observers. The anticipated responses listed in this section do not necessarily include all of the acceptable actions by participants and should not be used as a basis for evaluation of participant performance. Evaluation of participant decisions and actions should be based on appropriate implementation of the Emergency Plan and Emergency Plan Implementing Procedures.

### INITIAL CONDITIONS

#### **Unit 1**

- Unit 1 is operating at 100% power.
- Unit 1 Simulator is not participating in this drill.
- The Unit 1 Shift Manager is available for Unit 1 support.
- The Unit 1 STA is available for performing offsite notifications.

#### **Unit 2**

- Unit 2 is operating at 100% power and has been operating at this power level for 251 days.
- There are no operational problems on Unit 2 at this time.
- Auxiliary Feed Water Pump 2P-75 is out of service for lube oil pump replacement. (Out of service so that the Steam Generator cannot be fed once 2FW-5A fails)
- The night shift has completed exercising Control Element Assemblies (CEA) at 0700 hours.
- No surveillances are scheduled for the day shift.
- Shift turnover in the Unit 2 Control Room will begin at 0700 hours and the crew will take control of the simulator approximately 0730.

# APPENDIX 5

## PLANNING ISSUES

### 1. Arkansas Department of Health at the State Emergency Operations Facility

ISSUE NO.: 01-08-5a1-P-01

**CONDITION:** The first official Public Notification Message, evacuation of schools, did not include instruction to consult the emergency information brochure for additional information; however, the evacuation Public Notification Message for evacuation did include this note. Reference to pre-printed emergency information materials is a FEMA required element for all Emergency Alerting System messages.

**POSSIBLE CAUSE:** Pre-scripted messages are not consistent with current guidance which requires the inclusion of a reference to the public information brochure.

**REFERENCE:** Memorandum from Kay Goss to Regional Directors, dated 4/2/98 on "Interim-Use Guidance for Providing Information and Instructions to the Public for Radiological Emergencies Using the New Emergency Alert System (EAS)."

**EFFECT:** Members of the public can access this pre-printed material for reference to actions they may be required to take during the emergency. Much of the information contained in emergency messages is also contained in the pre-printed material and can be referred to in an emergency. If a member of the public did not capture all of the information broadcast in the emergency message, they can normally find the information in the pre-printed material. Parents that may have missed portions of an emergency message would not know they could refer to the pre-printed material for specific information on where to pick up their children.

**RECOMMENDATION:** The pre-scripted messages need to be reviewed for consistency with current program guidance.

### 2. Arkansas Field Radiological Monitoring Team One

ISSUE NO.: 01-08-4a3-P-05

**CONDITION:** Field Team 1 was unable to locate the pre-designated sampling/monitoring points 4C1 and 5J1 after driving to the area where they were supposed to be located. The team could not find the location designators that were to be affixed to utility poles.

**POSSIBLE CAUSE:** Recent storms in the Russellville area resulted in a number of utility poles requiring replacement. When the new poles were installed, sample location designators were not re-installed on those poles which needed them.

**REFERENCE:** Planning Standard J.10.a. This Standard identifies the need for maps showing locations of radiological sampling and monitoring points. Although such maps were available in hard copy, the specific reference at the sampling/monitoring point which would link it to the hard copy map was missing for the two locations where Field Team No. 1 was directed to go.

**EFFECT:** The lack of a specific reference point at the actual sampling location resulted in a delay of the measurements and sample collection while the team drove back and forth attempting to find the pre-designated locations. This had the effect of introducing a 15-20 minute delay in sampling and monitoring at a time when releases were beginning to impact the sampling area. It potentially slowed the decision making process which was dependent on these measurements.

**RECOMMENDATION:** At a minimum, re-label pre-designated sampling locations which are missing their identifying information. Recommend revising the procedure to include adding the latitude and longitude for these locations to provide an alternate method for identifying the location through the use of Global Positioning System (GPS) units already available to the field team.

3. Yell County Emergency Operations Center and Traffic/Access Control Point

ISSUE NO.: 01-08-1c1-P-04

**CONDITION:** The risk county implemented precautionary actions that affected the public with that specific information being delayed to the public. Once the

risk county began their precautionary action, the information did not make its way to Arkansas Department of Health (ADH) at the Site Emergency Operations Facility (SEOF) to disseminate to the public in a timely manner. ADH would develop the public information message without input from the risk county on precautionary actions.

**POSSIBLE CAUSE:** The risk county did not push forward the information about precautionary actions taken to the ADH at the SEOF. Risk county plans at 4.A.1. provide a mechanism for information to flow to ADH. "To insure information from the counties gets to the public, the ENC Local Government Communicator will contact the counties to insure such information is disseminated properly." Risk county's have difficulty in determining what information should be passed on to ADH through this process since no criteria are provided.

**REFERENCE:** Interim REP Program, Section I-21 and Memorandum from Kay Goss to Regional Directors, dated 4/2/98 on "Interim-Use Guidance for Providing Information and Instructions to the Public for Radiological Emergencies Using the New Emergency Alert System (EAS)."

**EFFECT:** Protective actions were implemented without notifying the public in a timely manner. For example, at 0951, Yell County evacuated Lake Dardanelle State Park and Mt. Nebo State Park as a precautionary action. The initial notification message addressing this action went out at 1119 but did not contain information to the public about what the risk county had already completed.

**RECOMMENDATION:** It is expected that the public will be alerted and notified of all protective measures, including precautionary evacuation of parks and waterways. With the risk county being the final decision maker for precautionary and protective action decisions, they must inform ADH of their actions to be included in information developed for the public at the SEOF. This will ensure that what goes out to the public is correct and accurately portrays what the risk county is doing in taking precautionary or protective actions. Make plans and procedures clearer by defining both the role of the counties and the role of the "ENC local government communicator" in communicating the decisions made at the state and county level.