



**FEMA**

November 12, 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 Designated Care Centers, medical and laboratory drills evaluated on October 20-22, 2008, by the U.S. Department of Homeland Security, Federal Emergency Management Agency, Region VI. My staff evaluated two Designated Care Centers (Clarksville and Hector), Pope County Emergency Medical Services, St. Mary's Medical Center, and the Arkansas Department of Health Radiochemistry Laboratory. No issues were identified during the drills.

Based on the results of the drills, 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 specific to Arkansas Nuclear One will remain in effect.

A copy of this report was mailed to the Document Control Desk at NRC Headquarters. Should you have questions, please contact me at (940) 898-5199, or Scott Flowerday, Radiological Emergency Preparedness Program Manager, at (940) 898-5370.

Sincerely,

A handwritten signature in black ink that reads "Lisa R. Hammond".

Lisa R. Hammond  
RAC Chair

Enclosure

cc: FEMA Headquarters - Vanessa Quinn  
NRC Headquarters- Lisa Gibney  
NRC Headquarters Document Control Desk  
Arkansas Department of Emergency Management -- David Maxwell  
Arkansas Department of Health – Bernie Bevill  
Arkansas Department of Health – Don Greene  
Arkansas Nuclear One Emergency Manager- Robert Holeyfield

# Arkansas Nuclear One

Drill Report - 2008-10-20

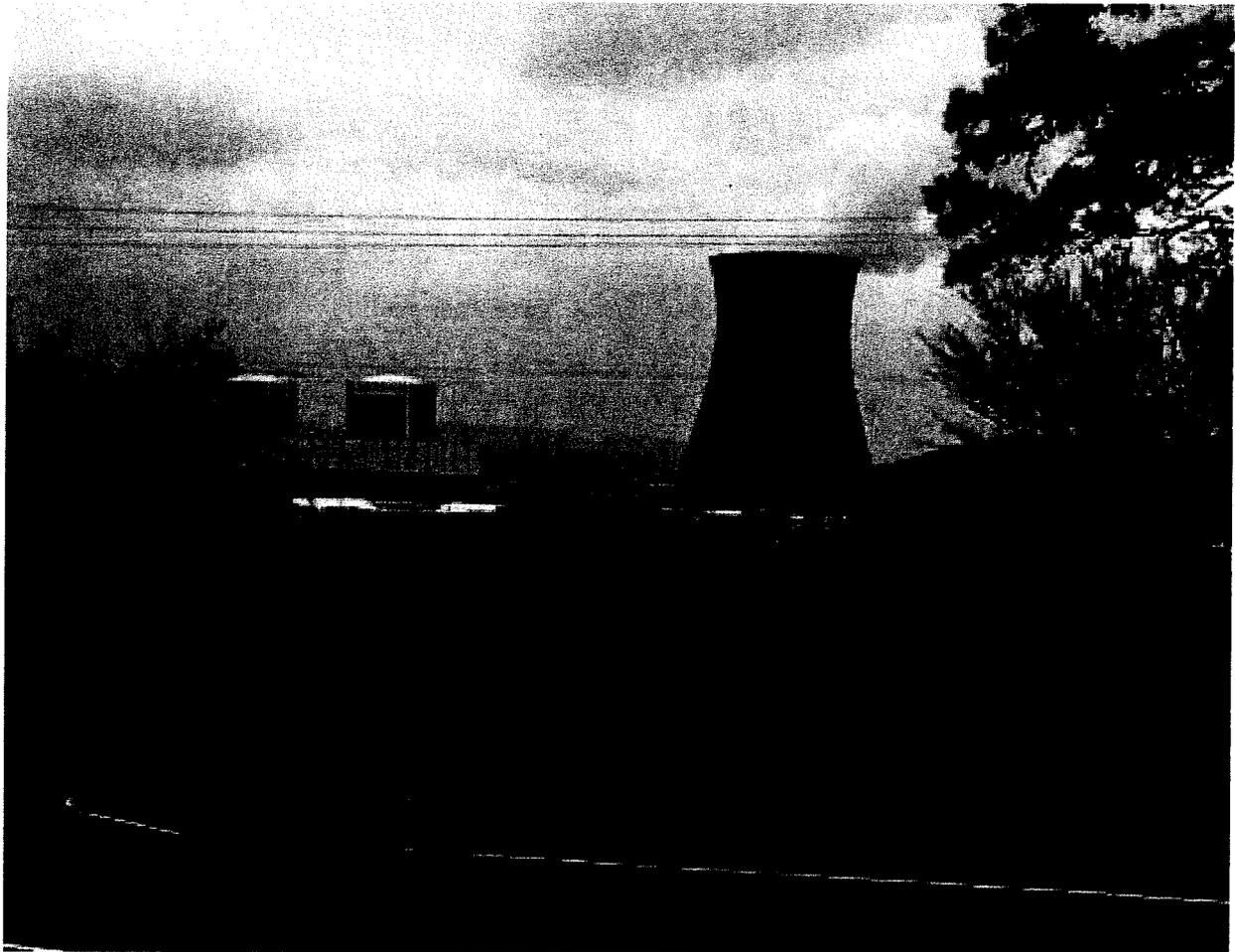
Final Report - Radiological Emergency

Preparedness (REP) Program

2008-11-12



# FEMA





# FEMA

## Drill Report

Arkansas Nuclear One

Drill Date: 2008-10-20

Report Date: 2008-11-12

U.S. DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

REP Program

800 North Loop 288

Denton, TX 76209

# Table of Contents

Chapter 1 Executive Summary

Chapter 2 Introduction

Chapter 3 Drill Overview

Section 3.1 EPZ Description

Section 3.2 Drill Participants

Chapter 4 Drill Evaluation and Results

Section 4.1 Summary Results of Drill Evaluation

Section 4.2 Status of Jurisdictions Evaluated

4.2.1 Arkansas Jurisdictions

4.2.1.1 Arkansas Department of Health Radiochemistry Laboratory

4.2.2 Risk Jurisdictions

4.2.2.1 Clarksville Designated Care Center

4.2.2.2 Hector Designated Care Center

4.2.2.3 Pope County Emergency Medical Services

4.2.3 Support Jurisdictions

4.2.3.1 Saint Mary's Medical Center

Appendices

Appendix 1 - Acronyms and Abbreviations

Appendix 2 - Drill Evaluators and Team Leaders

Appendix 3 - Drill Evaluation Areas and Extent of Play Agreement

Appendix 4 - Drill Scenario and Timeline

# 1. Executive Summary

On October 20-22, 2008, out-of-sequence laboratory, medical and Designated Care Center (DCC) drills were conducted for the Arkansas Nuclear (ANO), located near Russellville, Arkansas. Personnel from the U.S. Department of Homeland Security/FEMA (DHS/FEMA) Region VI, evaluated all activities. The purpose of the drills was to assess the level of preparedness of local responders to react to a simulated radiological emergency at the ANO.

This report contains the final evaluation of the out-of-sequence drills. The participants demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There were no Deficiencies and no Areas Requiring Corrective Action (ARCAs) identified during the drills.

## 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. Drill Overview

This section contains data and basic information relevant to the October 20-22, 2008 drills, to test the offsite response capabilities in the area surrounding the Arkansas Nuclear One (ANO). This section of the report includes a description of the Emergency Planning Zone (EPZ), and a listing of all participating jurisdictions and functional entities that were evaluated.

### 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. Drill Participants

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

### State Jurisdictions

- Arkansas Department of Health

- Pope County Health Unit, Arkansas Department of Health

### Risk Jurisdictions

- Pope County Office of Emergency Management

- Pope County Emergency Medical Services

- Johnson County Office of Emergency Management

- Johnson County Road Department

- Johnson County Sheriff's Department

### Support Jurisdictions

- Appleton Fire Department

- Clarksville Police Department

- Clarksville School District

- Hector Fire Department

- Hector School District

- Johnson County Rural Fire Departments 1, 2, 3, 5, 7, and 8

- Martin Township Fire Department

Private Jurisdictions

American Red Cross

Arkansas Nuclear One - Entergy Operations Inc.

Radio Amateur Civil Emergency Service (RACES)

St. Mary's Regional Medical Center

## 4. Drill Evaluation and Results

Contained in this section are the results and findings of the evaluation of all jurisdictions and functional entities, which participated in the October 20-22, 2008 laboratory, Designated Care Center (DCC), ambulance, and medical drills to test the offsite emergency response capabilities of local governments and support medical centers in the 10-mile EPZ surrounding Arkansas Nuclear One.

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 Drill 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 1 - Summary of Drill Evaluation

DATE: 2008-10-20 SITE: Arkansas Nuclear One, AR A: ARCA, D: Deficiency, M: Met		ADH Lab	Clarksville DCC	Hector DCC	Pope County EMS	St. Marys MC
<b>Emergency Operations Management</b>						
Mobilization	1a1					
Facilities	1b1					
Direction and Control	1c1					
Communications Equipment	1d1					
Equip & Supplies to support operations	1e1	M	M	M	M	M
<b>Protective Action Decision Making</b>						
Emergency Worker Exposure Control	2a1					
Radiological Assessment and PARs	2b1					
Decisions for the Plume Phase -PADs	2b2					
PADs for protection of special populations	2c1					
Rad Assessment and Decision making for the Ingestion Exposure Pathway	2d1					
Rad Assessment and Decision making concerning Relocation, Reentry, and Return	2e1					
<b>Protective Action Implementation</b>						
Implementation of emergency worker exposure control	3a1	M	M	M	M	M
Implementation of KI decision	3b1					
Implementation of protective actions for special populations - EOCs	3c1					
Implementation of protective actions for Schools	3c2					
Implementation of traffic and access control	3d1					
Impediments to evacuation are identified and resolved	3d2					
Implementation of ingestion pathway decisions - availability/use of info	3e1					
Materials for Ingestion Pathway PADs are available	3e2					
Implementation of relocation, re-entry, and return decisions.	3f1					
<b>Field Measurement and Analysis</b>						
Adequate Equipment for Plume Phase Field Measurements	4a1					
Field Teams obtain sufficient information	4a2					
Field Teams Manage Sample Collection Appropriately	4a3					
Post plume phase field measurements and sampling	4b1					
Laboratory operations	4c1	M				
<b>Emergency Notification and Public Info</b>						
Activation of the prompt alert and notification system	5a1					
Activation of the prompt alert and notification system - Fast Breaker	5a2					
Activation of the prompt alert and notification system - Exception areas	5a3					
Emergency information and instructions for the public and the media	5b1					
<b>Support Operations/Facilities</b>						
Mon / decon of evacuees and emergency workers, and registration of evacuees	6a1		M	M		
Mon / decon of emergency worker equipment	6b1					
Temporary care of evacuees	6c1		M			
Transportation and treatment of contaminated injured individuals	6d1				M	M

## 4.2. Status of Jurisdictions Evaluated

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

## 4.2.1.1. Arkansas Department of Health

### Radiochemistry Laboratory

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

## 4.2.2. Risk Jurisdictions

### 4.2.2.1. Clarksville Designated Care Center

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

### 4.2.2.2. Hector Designated Care Center

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

### 4.2.2.3. Pope County Emergency Medical Services

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

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

### 4.2.3. Support Jurisdictions

#### 4.2.3.1. Saint Mary's Medical Center

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

# APPENDIX 1

## ACRONYMS AND ABBREVIATIONS

ANO	Arkansas Nuclear One
ARC	American Red Cross
DCC	Designated Care Center
EM	Emergency Manager
EMS	Emergency Medical Services
EPA	Environmental Protection Agency
EPZ	Emergency Planning Zone
HP	Health Physics
NRC	Nuclear Regulatory Commission
PPE	Personal Protective Equipment
RAC	Regional Assistance Committee
RACES	Radio Amateur Civil Emergency Service
REA	Radiological Emergency Area
REP	Radiological Emergency Preparedness
RO	Radiological Officer
TOCD	Technical Operations Control Director

## APPENDIX 2

### DRILL EVALUATORS AND TEAM LEADERS

DATE: 2008-10-20, SITE: Arkansas Nuclear One, AR

LOCATION	EVALUATOR	AGENCY
Arkansas Department of Health Radiochemistry Laboratory	*Scott Flowerday	DHS/FEMA
Clarksville Designated Care Center	Bill Bischof Henry Christiansen *Scott Flowerday	DHS/FEMA ICF DHS/FEMA
Hector Designated Care Center	Bill Bischof Henry Christiansen *Scott Flowerday	DHS/FEMA ICF DHS/FEMA
Pope County Emergency Medical Services	*Henry Christiansen	ICF
Saint Mary's Medical Center	Bill Bischof *Scott Flowerday	DHS/FEMA DHS/FEMA
* Team Leader		

## APPENDIX 3

# EXERCISE EVALUATION AREAS AND EXTENT OF PLAY AGREEMENT

Arkansas Nuclear One 2008 MS-1, DCC, and Laboratory Drills  
October 20-22, 2008  
Extent-of-Play (EOP) Agreement  
Between  
The Arkansas Department of Health and FEMA Region VI

### EVALUATION AREA 1

#### Emergency Operations Management

#### 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:** ADH State Lab, Little Rock; St Mary's Hospital, Russellville; Pope County EMS, Russellville; Johnson County Designated Care Center (DCC), Clarksville; Pope County Designated Care Center (DCC), Hector

- 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. 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.**
  - 3. The quantities of Dosimetry and the quantities and expiration of KI will be confirmed by evaluators at locations identified in plans.**

**ARCA:** None

---

## APPENDIX 3

### 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: ADH State Lab, Little Rock; St Mary's Hospital, Russellville; Pope County EMS, Russellville; Johnson County Designated Care Center (DCC), Clarksville; Pope County Designated Care Center (DCC), Hector**

- EOP:**
- 1. Monitoring teams at the DCCs and EMS crews will use gloves and booties as necessary. Access to "anti-C's" will be demonstrated; however, they will not be worn. Hospital teams will wear "anti-Cs" IAW hospital plans.**
  - 2. Dosimetry and KI will be issued IAW plans.**
  - 3. Dosimetry will be issued to Laboratory personnel. Personnel will be interviewed about exposure limits.**
  - 4. The RO or designee will demonstrate the EW briefing, record keeping, and procedures for issuing and returning dosimetry and KI. The use of KI will be simulated.**
  - 5. 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**

---

## APPENDIX 3

### EVALUATION AREA 4

#### Field Measurement And Analysis

#### 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:**
- 1. Pre-staged samples will be delivered to the sample receipt location. Two (2) each of water, soil, and vegetation samples will be delivered.**
  - 2. Sample receipt personnel will demonstrate contamination control procedures.**
  - 3. Lab personnel will demonstrate counting techniques and will determine emergency counting times. After these procedures are demonstrated, the controller will present results to lab personnel.**
  - 4. Lab personnel will generate reports and communicate results IAW procedures.**
  - 5. This Drill will be on Wednesday, October 22, 2008 at approximately 12 noon.**
  - 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

## APPENDIX 3

### 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:** Johnson County Designated Care Center (DCC), Clarksville; Pope County Designated Care Center (DCC), Hector

- EOP:**
1. One portal monitor and one side of decon will be set up. A minimum of 6 people and 2 vehicles will go through the reception and monitoring procedures. One person and one vehicle will visit the decon facility. Decon will be simulated, but explained.
  2. Alternate locations for vehicle Decon may be required because of school activities.
  3. This EA will be demonstrated out-of-sequence:
    - a. Hector: Monday, 20 October 2008 after 6:00 PM
    - b. Clarksville: Tuesday, 21 October 2008 after 6:00 PM
  4. Sealed lockers will not be opened unless necessary.
  5. Twenty percent of the expected population at Hector is 1579. In order to monitor this number in 12 hours; 132 people per hour must be monitored. Since, 1 person can be monitored every 20 seconds using the portal monitors, 180 persons can be monitored per hour. That would require one portal monitors. Since only 1/3 of the required needed to monitor 20 percent is required for demonstration, only one monitor will be set up. The minimum of 6 people will be monitored.
  6. Twenty percent of the expected population at Clarksville is 353. In order to monitor this number in 12 hours; 30 people per hour must be monitored. Since, 1 person can be monitored every 20 seconds using the portal monitors, 180 persons can be monitored per hour. That would require one portal monitors. Since only 1/3 of the required needed to monitor 20 percent is required for demonstration, only one monitor will be set up. The minimum of 6 people will be monitored.
  7. Mobilization and activation were demonstrated during the activation of the EOC. The set up of the DCC will be initiated with a controller inject.

## APPENDIX 3

8. **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

---

### 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: Johnson County Designated Care Center (DCC), Clarksville; Pope County Designated Care Center (DCC), Hector**

- EOP:**
1. The DCC shelter manager or designee will be interviewed about DCC activities and show the facilities that will be used for Mass Shelters.
  2. An American Red Cross representative will be interviewed (location and time TBD) about Mass Shelters and the American Red Cross plan for converting Care Centers to Mass Shelters.

ARCA: None

---

### 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: Pope County EMS, Russellville**

- EOP:**
1. The EMS will pick up the patient at an Entergy facility. Prior to transfer of patient to the hospital, the EMS will demonstrate monitoring the patient. After patient transfer, the EMS will demonstrate vehicle monitoring. The ambulance will not be draped.

### APPENDIX 3

2. This EA will be demonstrated out-of-sequence on or about 0830 on Tuesday, October 21, 2008.
3. *Any real emergency will take precedence.*
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

---

Locations: St Mary's Medical Center, Russellville.

- EOP:
1. This EA will be demonstrated out-of-sequence on or about 0830 a.m. on Tuesday, October 21, 2008.
  2. *Any real emergency will take precedence.*
  3. Procedures at the hospital do not require draping of halls and entrances.
  - 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

---

# Hector and Clarksville DCC Scenario Controller Injects

## ANO OOS Drills Oct 20-22

### Portal Monitor Survey Form

Care Center \_\_\_\_\_

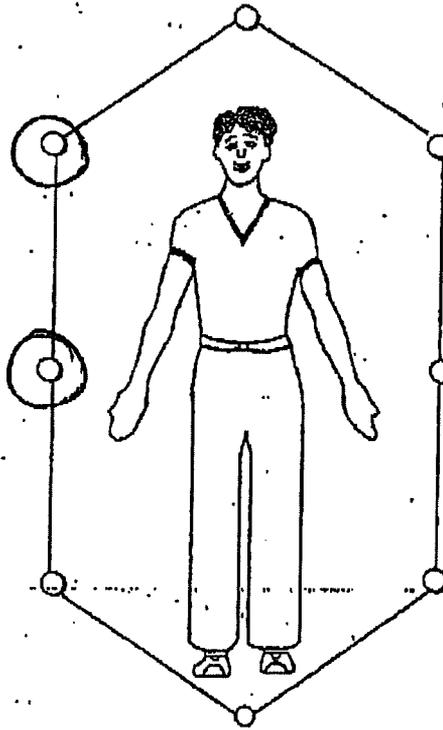
Date/Time \_\_\_\_\_

Operator \_\_\_\_\_

Recorder \_\_\_\_\_

Instructions for  
recorders

Mark the position of all  
red lights that are on



Name of Evacuee \_\_\_\_\_

Social Security Number \_\_\_\_\_ Birthdate \_\_\_\_\_

Address \_\_\_\_\_

City/State \_\_\_\_\_ Zip \_\_\_\_\_

### Personnel Contamination Report

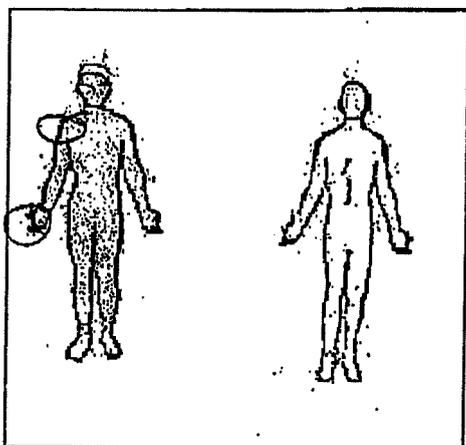
Reception Center Page Of

Name Social Security Number

Address	Telephone Numbers(s) Home _____ Work _____
---------	--

Area from which evacuated and route of evacuation

Denote Contaminated Areas.



		Background Reading <span style="float: right;">30 CPM</span>		
		Initial	Decon 1	Decon 2
1	Time CPM*	1500	700	100
2	Time CPM*			
3	Time CPM*			
4	Time CPM*			
5	Time CPM*			
6	Time CPM*			
*Notes above background				

Method of Decon

A. Removal of Contaminated Clothing  B. Shower with Soap and Water

CDV-700, Serial Number: \_\_\_\_\_

Further Action Required by TOCD: \_\_\_\_\_

I have been informed of the results of the above procedure and understand and will comply with any future actions required of me.

Signature _____		Date _____	
Radiation Monitor	Date	Medical Representative	Reception Center Manager
Health Physicist	Date	TOCD	Date

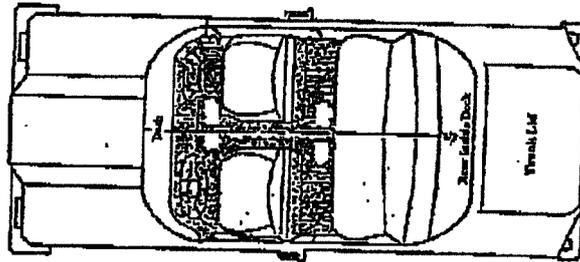
# Vehicle Survey Record

Year \_\_\_\_\_ Color \_\_\_\_\_ Model \_\_\_\_\_ Make \_\_\_\_\_

Tag Number \_\_\_\_\_ State \_\_\_\_\_

Owner \_\_\_\_\_ Address \_\_\_\_\_

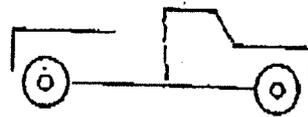
Driver \_\_\_\_\_ Address \_\_\_\_\_



Top/Interior



Driver's Side



Passenger's Side



Front

Reading = 1200 CPM



Rear

Surveyed by \_\_\_\_\_

Location \_\_\_\_\_

Time/Date of Survey \_\_\_\_\_

**ARKANSAS NUCLEAR ONE**

**POPE COUNTY EMS**  
**SAINT MARY'S REGIONAL MEDICAL CENTER**

**FEMA EVALUATION**

**Emergency Medical Scenario**  
**Contaminated Patient**

**POPE COUNTY EMS/SAINT MARY'S REGIONAL MEDICAL CENTER  
MS-1 EVALUATION  
Emergency Medical Scenario  
October 21, 2008**

**INITIATING CONDITIONS:**

Unit 1 has experienced a Primary to Secondary leak while operating at 100% power. A drain valve in the Unit 1 Penthouse has been discovered to be inoperable. A team of two Mechanics and one Health Physics Technician has been dispatched to the Penthouse to determine and correct the cause of the valve problem.

**OBJECTIVES:**

- Demonstrate coordination of the care and transportation between ANO and Pope County Emergency Medical Services.
  - ✓ Provide patient information and assistance to the EMS crew upon arrival at ANO.
  - ✓ Assist Pope County EMS crew with personal protection and radiological monitoring as needed.
  - ✓ Package patient in accordance with plant procedures that will ensure that contamination is not spread from the patient to the ambulance and/or the receiving hospital.
- Pope County EMS personnel will demonstrate the ability to monitor for radiological contamination, during transport and treatment of a radiologically contaminated patient.
- Saint Mary's Regional Medical Center staff will demonstrate the ability to provide medical care for a radiologically contaminated individual, as well as, protect the hospital staff and facility from the spread of radiological contamination.

**VICTIM:**

The mechanic is working on a valve, when the valve bonnet fails and the mechanic is hit with a blast of hot water. The other mechanic and the Health Physics Technician (HP) are in the outer room when this occurs. The mechanic is able to leave the area under his own power, and with the assistance of the second mechanic and the HP is able to leave the Penthouse area. He collapses on the roof of the Turbine Building.

The HP notifies the Control Room that an injury has occurred and the Emergency Medical Team is needed.

RESPONSE (ANO and Pope County EMS):

- The response by the ANO Medical Team will be simulated.
- Pope County 911 will be notified that an ambulance is needed at ANO.
- Pope County EMS will be directed to respond to the Reeves E. Ritchie Training Center (RERTC).
- Upon arrival of the EMS crew they will be escorted to the patient.
- The patient will be presented “as treated” by the on-site Emergency Medical Team.

08:00	Notify Pope County 9-1-1 that an ambulance is needed at ANO.
-------	--

Message 1: (THIS IS A DRILL)

This is Marlin Fletcher, Control Room Supervisor, Unit 1, Arkansas Nuclear One. We have an injured patient on-site and need an ambulance to respond. (THIS IS A DRILL)

- Provide patient information as requested.
- Patient is contaminated,
- Respond to the Reeves E. Ritchie Training Center (THIS IS A DRILL)

08:05	ANO will notify SMRMC that a contaminated injured patient is enroute from ANO by ambulance.
-------	---

Message 2: (THIS IS A DRILL) {479-968-6811}

This is Marlin Fletcher, Control Room Supervisor, Unit 1, Arkansas Nuclear One. We have an injured patient that is being transported to your hospital by ambulance. This patient has received a burn from hot water. I am not sure the extent of his injuries at this time. (THIS IS A DRILL)

- Provide patient information as requested.
- Patient is contaminated.
- An ambulance has been requested, and is enroute to our location. (THIS IS A DRILL)

08:15	On-site Emergency Medical Team Leader provides patient information to EMS crew.
-------	---

Message 3:

- Patient received burns from hot water.
- He has burns on his neck, chest, underarm, inner arm, and abdomen.
- These are mostly second-degree burns.
- We treated the burns with WaterJel burn sheets then replaced them with sterile burn sheets after the patient indicated that the burning had stopped.
- Initial assessment:
  - Patient conscious, alert
  - Pulse 97

- Respirations 30/slightly labored
- B/P 132/82
- Treatment in addition to the WaterJel, and burn sheets:
  - Oxygen at 12 lpm by simple mask.
  - Removed contaminated clothing.
  - Placed the patient on a spine board to allow us to move him to this location.
- Follow-up assessment
  - Level of consciousness is unchanged.
  - Pulse 94
  - Respirations 28 labored
  - B/P 132/80
  - There are no other injuries noted.
- He is packaged to contain the contamination.

08:15	ANO Health Physics Technician provides report on radiological contamination of the patient.
-------	---

Message 4:

- This guy was hit by hot water that had radioactive contaminants in it.
- He has contamination from his neck to his belt line, and across his chest, left arm and left side.
- The contamination levels range from 18,000 to 20,000 cpm.
- We put him in the body bag to provide containment for the contamination.

08:40	Pope County EMS crew assumes care of the patient. Prepare for transport.
-------	--

08:50	Pope County EMS crew transports patient.
-------	--

Message 5: (If requested)

- Vital signs are as follows:
  - Pulse 76 and regular
  - Respirations 20 and unlabored
  - Lung sounds clear and equal
  - Blood pressure 120/72
- Drill Controller will provide additional patient information as needed.

09:00	Arrive SMRMC, EMS crews unloads patient and moves to wash down room.
-------	--

09:05	Paramedic provides patient report/turnover to Hospital staff.
-------	---

09:05	Health Physics Technician provides contamination and survey results
-------	---

Message 6

- He was sprayed with contaminated hot water.
- The initial levels were around 60,000 cpm.
- After we removed his clothing, and treated the burns, the contamination levels were approximately 40,000 cpm.
- When the WaterJel sheets were removed, that lowered the contamination to approximately 20,000 cpm.

09:05	SMRMC staff begins care for the patient
-------	---

Message 7

- Controller will provide information as assessed by the Medical staff.
- Removing the burns sheets will reduce the contamination levels to 10,000 cpm.
- Each additional decontamination attempt will reduce the level of contamination by one-half.

Note: When the drill evaluators are satisfied with the treatment and decontamination efforts, the drill controller will provide the following message.
--

Message 8

- Contamination levels are below 100 cpm.

09:30	Staff exits the controlled area.
-------	----------------------------------

09:40	Terminate drill
-------	-----------------

### Lab Scenario

1. Since the samples were QC'd for external contamination and lab maximum activity at the armory before transit to Little Rock, all the monitoring of samples and the courier will be background.
2. The controller will watch the sample preparation activity. If he determines that external contamination could be present, he will inject a contamination reading.
3. Once the samples have been simulated read, the controller will provide the attached sample results to the lab tech.

Location Identity: Cole Ranch

Location:

Lat: 35.323 Lon: -93.096

Sample Site:

Exposure Rate

mR/hr

Date/Time 10/21/08 0800

### Soil

Isotope	Activity pCi/kg
Cs-134	9.56E-02
Cs-137	7.82E-02
I-131	4.80E+00
I-132	8.02E-01
I-133	5.50E+00
I-135	1.80E+00