



**Annual Medical Drill Report  
Columbiana County, Ohio  
Beaver Valley Power Station**

**Licensee: First Energy**  
**Exercise Date: November 9, 1999**  
**Report Date: November 21, 1999**

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**FEDERAL EMERGENCY MANAGEMENT AGENCY  
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## I. EXECUTIVE SUMMARY

On November 9, 1999, a medical drill was conducted in the plume exposure pathway emergency planning zone (EPZ) around the Beaver Valley Power Station by the Federal Emergency Management Agency (FEMA), Region V. The purpose of the medical drill was to demonstrate the capabilities of the emergency response organizations in handling a contaminated, injured person. The medical drill was designed to satisfy Salem Hospital's requirement for an emergency drill and the Federal Emergency Management Agency's Guidance Memorandum MS-1, "Medical Services."

FEMA wishes to acknowledge the efforts of the Rural Metro Ambulance Company and Salem Community Hospital and staff who participated in this medical drill.

The scenario for the medical drills were developed by personnel from the First Energy Utility Company and coordinated with the State of Ohio. The following objectives, which are part of the 33 standardized objectives contained in FEMA's Exercise Manual (FEMA-REP-14), were evaluated during these medical drill.

**Objective 5: Emergency Worker Exposure Control.** Demonstrate the capability to continuously monitor and control radiation exposure to emergency workers.

**Objective 20: Medical Services - Transportation.** Demonstrate the adequacy of vehicles, equipment, procedures, and personnel for transporting contaminated, injured, or exposed individuals.

**Objective 21: Medical Services - Facilities.** Demonstrate the adequacy of the equipment, procedures, supplies, and personnel of medical facilities responsible for the treatment of contaminated, injured, or exposed individuals.

The State and local organizations, except where noted in this report, demonstrated knowledge of their organizational emergency response plans and procedures and adequately implemented them. There were no Deficiencies identified as a result of this exercise. There were no Areas Requiring Corrective Action (ARCA) identified as a result of this exercise.

## II. 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 November 9, 1999 medical drill to test the ability of offsite agencies to respond to a medical emergency involving a potentially radiologically contaminated member of the public in the area surrounding the Beaver Valley Power Station.

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

- **Met** - Listing of the demonstrated exercise objectives under which no Deficiencies or ARCAs were assessed during this exercise and under which no ARCAs assessed during prior exercises remain unresolved.
- **Deficiency** - Listing of the demonstrated exercise objectives under which one or more Deficiencies was assessed during this exercise. Included is a description of each Deficiency and recommended corrective actions.
- **Area Requiring Corrective Actions (ARCA)** - Listing of the demonstrated exercise objectives 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 objectives that 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 which are discussed in this report.

- A **Deficiency** is defined in FEMA-REP-14 as "...an observed or identified inadequacy of organizational performance in an exercise that could cause a finding that offsite emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken in the event of a radiological emergency to protect the health and safety of the public living in the vicinity of a nuclear power plant."
- An **ARCA** is defined in FEMA-REP-14 as "...an observed or identified inadequacy of organizational performance in an exercise that is not considered, by itself, to adversely impact public health and safety."

FEMA has developed a standardized system for numbering exercise issues (Deficiencies and ARCAs). This system is used to achieve consistency in numbering exercise issues 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 and ARCAs 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.
- **Objective Number** - A two-digit number corresponding to the objective numbers in FEMA-REP-14.
- **Issue Classification Identifier** - (D = Deficiency, A = ARCA). Only Deficiencies and ARCAs are included in exercise reports.
- **Exercise Issue Identification Number** - A separate two (or three) digit indexing number assigned to each issue identified in the exercise.

**1. COLUMBIANA COUNTY**

**1.1 Rural Metro Ambulance Company**

- a. **MET: Objectives 5 and 20**
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ARCAs - RESOLVED: NONE**
- f. **PRIOR ARCAs - UNRESOLVED: NONE**

**1.2 Salem Community Hospital**

- a. **MET: Objectives 5 and 21**
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ARCAs - RESOLVED: NONE**
- f. **PRIOR ARCAs - UNRESOLVED: NONE**

### III. EXERCISE NARRATIVES

The following pages contain the narrative summary that details the activities demonstrated at the November 9, 1999 medical drill for the Beaver Valley Nuclear Power Station.

#### **OBJECTIVE 5: EMERGENCY WORKER EXPOSURE CONTROL**

Demonstrate the capability to continuously control radiation exposure to emergency workers.

Objective Status: Met

##### Rural Metro Ambulance Company

The Rural Metro Ambulance Company was issued a dosimetry packet, consisting of a small plastic zip-style bag with clip containing a thermoluminescent dosimeter (TLD), a CDV-730, and a CDV-742 direct reading dosimeter and a Dosimetry Report Form for recording exposures. They also received KI tablets with instructions. Each emergency medical staff member recorded dosimeter numbers and initial readings on their Dosimetry Report Forms that were maintained throughout the drill. The dosimeter packets are turned into the Supervisor Exposure Coordinator from Rural Metro Ambulance Company once the drill had been terminated.

The Rural Metro Ambulance Company Emergency Medical Technician's (EMTs) were questioned on the purpose of the KI tablets if they were in a radiological plume zone. They stated that they may be instructed to take KI for thyroid blocking purposes and were knowledgeable about the higher dose limits that may be authorized for special missions.

##### Salem Community Hospital

The Salem Community Hospital staff members recorded dosimeter numbers and initial readings on their Dosimetry Report Forms which were maintained throughout the drill. The hospital personnel wore thermoluminescent dosimetry. Dosimeter inspection dates were current (September 1999-2000) and within the time frames specified. Instructions on how to use the Direct Reading Dosimeters (DRDs) and to take periodic readings were available. Each medical staff member had access to and demonstrated proper use of the CDV- 138, CDV-730, and the CDV-750 dosimeter charger. The charger was inspected and checked for proper operation.

The instruments used for radiological monitoring were within calibration dates (September 1999-2000) and proper pre-operations checks were performed. They used a decontamination trigger level of any reading .1mR/hr above background.

All activities described in the demonstration criteria for this objective were carried out in accordance with the plan, procedures, and the extent-of-play agreement.

## **OBJECTIVE 20: MEDICAL SERVICES - TRANSPORTATION**

Demonstrate the adequacy of vehicles, equipment, procedures, and personnel for transporting contaminated, injured, or exposed individuals.

Objective Status: Met

### Rural Metro Ambulance Company

At 1515 hours a General Emergency Classification Level was declared at the Beaver Valley Power Station. The Rural Metro Ambulance Company was notified by the Columbiana County EOC to pick up an injured and potentially contaminated individual. The victim was reported to be conscious.

The Rural Metro Ambulance Company was where the Emergency Medical Services (EMS) team assessed the patient for injuries and possible contamination. The Emergency Medical Technicians (EMT) had received training on the procedures on how to exit a contaminated area. They prepared the ambulance gurney by covering it with a white bed sheet to avoid spreading contamination. The victim was stabilized, lifted on a backboard, placed on the ambulance gurney and transported to the hospital.

At 1600 hours the ambulance crew made contact with Salem Community Hospital using their two-way radio system. They communicated that a person had been injured and was experiencing great pain on the lower right leg. The victim's right arm and elbow were both abraded and bruised. The knees were bruised, not abraded. His vital signs were: blood pressure: 100/60, pulse: 90, breathing: 22, temperature: normal, skin: pale, no nausea, and vision: clear, eyes equal and reactive. The estimated time of arrival at the hospital was in 5 minutes.

At 1610 hours the victim arrived at the hospital and was transferred from the ambulance gurney to the decontamination room. The transfer was accomplished without difficulty.

Following the transfer of the victim, the crew, ambulance, and all of the equipment was monitored by one of the Salem Community Hospital Nuclear Medicine technicians. The technician explained what steps would be taken if contamination was found on the crew, vehicle, or equipment. There were no findings of contamination by the technician and the crew was released to return to the Rural Metro Ambulance station.

All activities described in the demonstration criteria for this objective were carried out in accordance with the plan, procedures, and the extent-of-play agreement.

## **OBJECTIVE 21: MEDICAL SERVICES - FACILITIES**

Demonstrate the adequacy of equipment, procedures, supplies, and personnel of medical facilities responsible for treatment of contaminated, injured, or exposed individuals.

Objective Status: Met

### Salem Community Hospital

At 1515 hours, the emergency room staff at Salem Community Hospital received a call from the Columbiana County Emergency Management Agency informing them of an injured and potentially contaminated individual was hurt at the assembly area while evacuating from the Beaver Valley Power Station. They informed the hospital that the radiation accident victim would be transported to the hospital upon stabilization. The hospital would receive the victim in the treatment/decontamination room. The hospital's procedures to notify the following five departments were observed; Radiological Safety Officer, Radiological Department, Emergency Room, Security, and Building Maintenance. By 1530 hours the hospital staff notification was completed.

At 1535 hours the decontamination staff set-up the room. The area was taped off to restrict unauthorized entrance and a security guard was present to limit access to the area. The return air vents on the interior of the room were covered with plastic sheets and taped in place to prevent contaminated air particulates from spreading through the hospital ventilation system. Appropriate waste bags and fluid collection containers for radioactive waste materials were placed in the room. By 1605 hours the area was declared ready to accept the victim.

At 1600 hours, the decontamination room personnel began dressing-out in standard surgical outfits including double gray plastic garments, face masks, goggles, waterproof shoe covers, and two sets of rubber gloves.

The monitoring and decontamination team included one Radiologist, one Emergency Room nurse, one Nuclear Medicine RN, and two Nuclear Technicians. The instruments used for radiological monitoring were within the calibration dates (September 1999-2000) and proper pre-operations checks were performed. They used a decontamination trigger level of .1mR/hr.

At 1610 hours, the patient arrived at the hospital, was transferred to a gurney, and brought to the examination/decontamination room. Once the medical team had the patient in the room, an immediate physical exam was made to determine the patient's current medical status. The lower right leg, both knees, and the victim's right arm and elbow were abraded and bruised. The knees are bruised. The reading on the outer clothing on both knees was 3.0 mR/hr. With the removal of the pant-legs the right leg no longer had a reading, but the left knee remained contaminated. It was decontaminated by one washing. The right elbow was totally clean of contamination with two washings.

The medical team conducted initial decontamination using sterile water, a detergent solution, and a sponge. Swabs were taken from the victim's ears, nostrils, eyes, throat, left knee, and right elbow for radiation readings. The patient was then re-monitored for contamination levels. The hospital nuclear medicine technician performed several checks of the medical staff during the exercise to assure no contamination was being spread. The technician also directed the staff to change gloves frequently.

At 1637 hours the contamination level was reduced to zero and the patient was ready for transfer to the x-ray room.

One Nuclear Medicine RN disrobed according to procedures. She went through the procedures and the remaining staff disrobed normally. The exercise terminated at 1700 hours.

All activities described in the demonstration criteria for this objective were carried out in accordance with the plan, procedures, and the extent-of-play agreement.