



Beaver Valley Power Station

After Action Report/ Improvement Plan

Drill Date - March 20, 2013

Radiological Emergency Preparedness (REP) Program



FEMA

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EXECUTIVE SUMMARY

On March 20, 2013, the Federal Emergency Management Agency (FEMA), Region III, conducted a Medical Services (MS-1) Drill in relation to the Beaver Valley Power Station (BVPS). The purpose of the drill was to assess the level of State and local preparedness in responding to a radiological medical emergency. This drill was held in accordance with FEMA's policies and guidance concerning the exercise of State and local Radiological Emergency Preparedness Response Plans (RERP).

The most recent evaluated Medical Services Drill at this site was conducted on May 17, 2011.

FEMA wishes to acknowledge the efforts of the many individuals in the State of West Virginia and the risk county of Hancock County, WV, as well as the Weirton Area Ambulance and Rescue Squad and Weirton Medical Center, who participated in this drill.

Protecting the public health and safety is the full-time job of some of the exercise participants and an additional assigned responsibility for others. Still others have willingly sought this responsibility by volunteering to provide vital emergency services to their communities. Cooperation and teamwork of all the participants were evident during this drill.

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, Areas Requiring Corrective Action (ARCAs), or Planning Issues identified as a result of this drill. Furthermore, there were no Prior Issues to be resolved as a result of previous drills.

SECTION 1: EXERCISE OVERVIEW

1.1 Exercise Details

Exercise Name

Beaver Valley Power Station

Type of Exercise

Drill

Exercise Date

March 20, 2013

Program

Department of Homeland Security/FEMA Radiological Emergency Preparedness Program

Scenario Type

Radiological Emergency

1.2 Exercise Planning Team Leadership

Lee Torres

FEMA Evaluator

FEMA Region III

Technological Hazards Program Specialist

1 Independence Mall, 6th Floor

615 Chestnut Street

Philadelphia, Pennsylvania, 19106

215-931-5563

lee.a.torres@dhs.gov

Daniel Lerch

FEMA Evaluator

FEMA Region III

Technological Hazards Program Specialist

1 Independence Mall, 6th Floor
 615 Chestnut Street
 Philadelphia, Pennsylvania, 19106
 215-931-5603
 daniel.lerch@dhs.gov

Sam Paletta
 Controller
 FENOC
 Offsite Coordinator
 Beaver Valley Power Station
 Route 168
 Shippingport, Pennsylvania, 15077
 724-682-5774
 palettas@firstenergycorp.com

Dave Linkimer
 Controller
 FENOC
 Offsite Coordinator
 Rt. 168
 Shippingport, Pennsylvania, 15077
 412-720-2940
 dlinkimer@firstenergycorp.com

1.3 Participating Organizations

Agencies and organizations of the following jurisdictions participated in the Beaver Valley Power Station drill:

State Jurisdictions

- WV Division of Homeland Security and Emergency Management
- WV Department of Health and Human Resources

Risk Jurisdictions

Hancock County Office of Emergency Management

Hancock County, Weirton Medical Center

Hancock County, Weirton Area Ambulance and Rescue Squad

Support Jurisdictions

Brooke County Office of Emergency Management

SECTION 2: EXERCISE DESIGN SUMMARY

2.1 Exercise Purpose and Design

On March 20, 2013, a Medical Services Drill was facilitated in relation to the Beaver Valley Power Station (BVPS) by the Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA), Region III, Radiological Emergency Preparedness Program (REPP). The purpose of the exercise was to assess the level of State and local preparedness in responding to a radiological emergency. The drill was held in accordance with DHS's policies and guidance concerning the exercise of State and local Radiological Emergency Response Plans (RERPs) and procedures. The most recent previous FEMA evaluated Medical Services Drill for this site in West Virginia was conducted on May 17, 2011.

FEMA Region III wishes to acknowledge the efforts of the many individuals in the State of West Virginia, the risk jurisdiction of Hancock County, the Weirton Medical Center, and the Weirton Area Ambulance and Rescue Squad, who participated in this drill.

Protecting the public health and safety is the full-time job of some of the drill participants and an additional assigned responsibility for others. Still others have willingly sought this responsibility by volunteering to provide vital emergency services to their communities. Cooperation and teamwork of all the participants were evident during this drill.

EMERGENCY PLANNING ZONE DESCRIPTION:

BVPS is located in western Pennsylvania on the southern bank of the Ohio River in Beaver County, Pennsylvania. The site is located near Shippingport Borough, about 1.5 miles from Midland, Pennsylvania, on 501 acres of fairly level terrain owned by the First Energy Nuclear Operating Company (FENOC). The latitude for the site is 40°37'18" north; the longitude is 80°26'02" west. Two pressurized water reactors are located on the 17 acres of the parcel occupied by the power station. The operating licenses for the facility were granted in July 1976 (Unit 1) and August 1987 (Unit 2); commercial operations began at the site during October 1976 (Unit 1) and November 1987 (Unit 2). Unit 1 generates an output of 954 megawatts (MW); the Unit 2 output is 978 MW. One hundred and twenty sirens cover the plume EPZ; eighty five of the sirens are in Pennsylvania and twelve sirens are in West Virginia.

Steep slopes that contributed to the development of river mill towns, where most of the industry

and residences are located, characterize the general topography of the region. The region is part of the large industrial complex centered around Pittsburgh, Pennsylvania. The terrain rises from the Ohio River to a maximum elevation of 1,160 feet above mean sea level (MSL). Drainage is predominantly toward the river. The soils in the area are made up of alluvial sands and gravel. The bedrock geology consists of sedimentary formations composed of shale and sandstone. No faults are located under or near the facility. The Ohio River is about 664 feet above MSL, and the plant grade is 735 feet above MSL.

The climate is a humid continental type. The average annual temperature for the area is about 50°F. Annual precipitation is approximately 36 inches. The area around the plant is mostly agricultural or undeveloped. The nearest community is Shippingport Borough, Pennsylvania, which is the parent borough for the site and has a population of 237. The nearest major population center of more than 25,000 people is Pittsburgh, which has a population of 305,704 and lies 22 miles to the southeast. The maximum population distribution, including residents and transients, is 114,514 in the 10-mile EPZ.

Four major industries employ a total of 8,000 persons within 10 miles of the plant. Two small airfields (Beaver County and Herron Airport) are also in the 10 mile EPZ. Runways at both airports are oriented so that the extensions do not pass over the plant. No major thoroughfares exist in the immediate vicinity. The main line of the Conrail Railroad runs parallel to the plant along the north bank of the Ohio River.

2.2 Exercise Objectives, Capabilities and Activities

The objective of the Beaver Valley Power Station/Weirton Medical Center Medical Services (MS-1) Drill was to demonstrate that the response organizations have the personnel, equipment, training, and knowledge to effectively assess the condition of a potentially radioactively contaminated patient, protect against cross contamination, transport, and transfer the patient to a hospital where the patient can then be decontaminated and treated. The hospital personnel are responsible for preparing a receiving and treatment area, operating radiological detection equipment, and implementing proper emergency worker protective procedures.

All activities were evaluated in accordance with current FEMA directives and guidance and were performed in accordance with current hospital plans and procedures.

2.3 Scenario Summary

The exercise scenario for this Medical Services Drill consisted of simulated notifications of escalating emergency classification levels at Beaver Valley Power Station from Site Area Emergency to General Emergency. Subsequent to being notified of the General Emergency, the 911 Center informed the Hospital that an incident had occurred at a vehicle decontamination center, resulting in the injury and possible radiological contamination of an emergency worker. The Hospital implemented its plan to prepare a Radiation Emergency Area to receive and treat the patient and activated its radiation emergency medical team.

The patient was injured in a fall that resulted in a broken right ankle. The patient's right elbow/forearm area and right knee were also abraded and bruised. Detectable radioactive contamination was found on the right knee and right elbow.

SECTION 3: ANALYSIS OF CAPABILITIES

3.1 Drill Evaluation and Results

Contained in this section are the results and findings of the evaluations of all jurisdictions and locations that participated in the March 20, 2013, Medical Services Radiological Emergency Preparedness (REP) Exercise. The exercise was conducted to demonstrate the ability of the Offsite Response Organizations to respond to a potentially radiologically contaminated injured person associated with the Beaver Valley Power Station.

Each jurisdiction and functional entity was evaluated on the basis of its demonstration of the Exercise Evaluation Area Criteria contained in the REP Program Manual. Detailed information on the exercise evaluation area criteria and the Extent-of-Play agreement are found in Appendix C.

3.2 Summary Results of Drill Evaluation

The Beaver Valley Power Station 2013 Medical Services Drill evaluation included two (2) participating locations. Two evaluators provided analyses of six (6) Exercise Criteria. These analyses resulted in a determination that all criteria were successfully demonstrated and there were no Deficiencies, Areas Requiring Corrective Action, or Planning Issues.

Table 3.1 - Summary of Drill Evaluation

DATE: 2013-03-20 SITE: Beaver Valley Power Station, PA M: Met, A: ARCA, D: Deficiency, P: Plan Issue, N: Not Demonstrated		HC WMC	HC WAARS
Emergency Operations Management			
Mobilization	1a1		
Facilities	1b1		
Direction and Control	1c1		
Communications Equipment	1d1		
Equipment and Supplies to Support Operations	1e1	M	M
Protective Action Decision Making			
Emergency Worker Exposure Control	2a1		
Dose Assessment & PARs & PADs for the Emergency Event	2b1		
Dose Assessment & PARs & PADs for the Emergency Event	2b2		
PADs for disabilities & access/functional needs people	2c1		
Radiological Assessment & Decision-making for Ingestion Pathway	2d1		
Radiological Assessment & Decision-making for Relocation/Reentry/Return	2e1		
Protective Action Implementation			
Implementation of Emergency Worker Exposure Control	3a1	M	M
Implementation of KI PAD for Institutionalized Individuals/Public	3b1		
Implementation of PADs for disabilities & access/functional needs people	3c1		
Implementation of PADs for Schools	3c2		
Implementation of Traffic & Access Control	3d1		
Impediments to Evacuation	3d2		
Availability & use of Commodity & Resource Information	3e1		
Preprinted Materials for Implementing PADs for Commodities & Resources	3e2		
Implementation of Relocation/Reentry/Return Decisions	3f1		
Field Measurement and Analysis			
RESERVED	4a1		
Field Team Management	4a2		
Plume Phase Field Measurement, Handling, & Analyses	4a3		
Post Plume Phase Field Measurements & Sampling	4b1		
Laboratory Operations	4c1		
Emergency Notification and Public Info			
Activation of the Prompt Alert & Notification System	5a1		
RESERVED	5a2		
Activation of the Back-up ANS	5a3		
Activation of the Exception Area ANS	5a4		
Emergency Information & Instructions for the Public/Media	5b1		
Support Operations/Facilities			
Monitoring, Decontamination, & Registration of Evacuees	6a1		
Monitoring/Decontamination of Emergency Workers/Equipment/Vehicles	6b1		
Temporary Care of Evacuees	6c1		
Transportation/Treatment of Contaminated Injured Individuals	6d1	M	M

3.3 Criteria Evaluation Summaries

3.3.1 Risk Jurisdictions

3.3.1.1 Hancock County, Weirton Medical Center

In summary, the status of DHS/FEMA criteria for this location is as follows:

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

3.3.1.2 Hancock County, Weirton Area Ambulance and Rescue Squad

In summary, the status of DHS/FEMA criteria for this location is as follows:

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

SECTION 4: CONCLUSION

Based on the review of the offsite Radiological Emergency Response Plans and Procedures submitted, FEMA Region III has determined they are adequate and there is reasonable assurance they can be implemented, as demonstrated during the Beaver Valley Power Station/Weirton Medical Center 2013, Medical Services (MS-1) Drill.

APPENDIX A: DRILL EVALUATORS AND TEAM LEADERS

DATE: 2013-03-20, SITE: Beaver Valley Power Station, PA

LOCATION	EVALUATOR	AGENCY
Hancock County, Weirton Medical Center	*Daniel Lerch	FEMA RIII
Hancock County, Weirton Area Ambulance and Rescue Squad	*Lee Torres	FEMA RIII
* Team Leader		

APPENDIX B: ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
BVPS	Beaver Valley Power Station
DRD	Direct Reading Dosimeter
EMT	Emergency Medical Technician
FEMA	Federal Emergency Management Agency
FENOC	First Energy Nuclear Operating Company
GE	General Emergency
MS	Medical Services
PPE	Personal Protective Equipment
PRD	Permanent Record Dosimeter
REA	Radiation Emergency Area
REP	Radiological Emergency Preparedness
RO	Radiological Officer
SAE	Site Area Emergency

APPENDIX C: EXERCISE PLAN

WEIRTON MEDICAL CENTER
MEDICAL SERVICES EXERCISE

March 20, 2013

EXERCISE SUMMARY

The purpose of this exercise is to demonstrate the capabilities of the emergency response organizations in handling a contaminated, injured person.

The exercise is designed to satisfy Weirton Medical Center's requirement for an emergency drill and the Federal Emergency Management Agency's Guidance Memorandum MS-1, "Medical Services".

The scenario will be driven by the controller at the Weirton Area Ambulance and Rescue Squad and by the controller at the Weirton Medical Center. The Controller at the Weirton Medical Center will be the Lead Controller.

The Hancock County Emergency Worker Decontamination Center was demonstrated in the BVPS June 2012 Federal Evaluated Exercise. This facility will be simulated during this MS-1 Exercise.

PARTICIPANTS

Weirton Medical Center
Weirton Area Ambulance and Resque Squad

CONTROLLERS

FirstEnergy Nuclear Operating Company

OBSERVERS

West Virginia Division of Homeland Security / Emergency Management Agency

Hancock County Office of Emergency Management

Brooke County Emergency Management Agency

EVALUATORS

Federal Emergency Management Agency

SCHEDULE OF EVENTS

WEIRTON AREA AMBULANCE AND RESCUE SQUAD

- 8:00 AM Exercise begins
- 8:00 AM Ambulance Company is notified that Beaver Valley Power Station has declared a Site Area Emergency
- 8:10 AM Ambulance Company is notified that Beaver Valley Power Station has escalated to a General Emergency
- 8:15 AM An ambulance is requested to report to the accident staging area to pick up an injured and potentially contaminated individual
- 8:55 AM * Ambulance leaves for Weirton Medical Center
AMBULANCE WILL RESPOND WITHOUT SIRENS AND LIGHTS
- 9:00 AM * Ambulance arrives at the hospital and the patient is removed from the ambulance. The ambulance is sent (simulated) to the Emergency Worker Decontamination Center
- 9:15 AM * Exercise Ends for WARRS
- 10:00 AM * Critique at the Medical Center

SCHEDULE OF EVENTS**WEIRTON MEDICAL CENTER**

8:00 AM	Exercise begins
8:00 AM	The hospital is notified that Beaver Valley Power Station has declared a Site Area Emergency
8:10 AM	The hospital is notified that the emergency at the Beaver Valley Power Station has escalated to a General Emergency
8:15 AM	The hospital is notified that a person has been injured who is potentially contaminated
8:55 AM *	The hospital is notified that the ambulance is enroute with the ETA of 5 minutes
9:00 AM *	The patient arrives at the hospital
9:45 AM *	Exercise Ends
10:00 AM *	Critique at the Medical Center

* Times may vary. Starting time is subject to change

OBJECTIVES

WEIRTON MEDICAL CENTER

1. Demonstrate that the facility has the appropriate space, adequate resources and trained personnel to provide monitoring/decontamination and medical services to contaminated/injured individuals. 6.2.1
2. Demonstrate appropriate procedures and equipment to manage radiological exposure to staff. 3.a.1
3. Demonstrate the ability utilize dosimetry, equipment and procedures to manage radiological exposure to emergency workers. 3.a.1
4. Complete appropriate paperwork to document and record readings and assigned dosimetry. 3.a.1

WEIRTON AREA AMBULANCE AND RESCUE SQUAD (WAARS)

1. Demonstrate the ability to transport contaminated/injured individuals while using ALARA principles. 6.d.1

NOTE: The Weirton Medical Center Radiological Exposure Plan assigns radiological monitoring of the patient to the Hospital.

NOTE: Ambulance personnel do not monitor patients for contamination.

NOTE: Monitoring of ambulance personnel and vehicle is the responsibility of the Hospital, if available, and the monitoring decontamination center if the hospital is not available.

NOTE: Players will be pre-staged for the start of the exercise.

SCENARIO

- 8:00 AM The Emergency Room Charge Nurse at Weirton Medical Center is notified that Beaver Valley Power Station has declared a Site Area Emergency and begins preparations for handling potentially contaminated individuals.
- 8:00 AM Weirton Area Ambulance and Rescue Squad (WAARS) is notified that Beaver Valley Power Station has declared a Site Area Emergency and begins preparations for handling potentially contaminated individuals.
- 8:10 AM Weirton Medical Center is notified that the emergency at Beaver Valley Power Station has escalated to a General Emergency.
- 8:10 AM Weirton Area Ambulance and Rescue Squad is notified that the emergency at Beaver Valley Power Station has escalated to a General Emergency.
- 8:15 AM Weirton Area Ambulance and Rescue Squad is requested to report to the accident staging area (Squad parking lot or garage) to pick up an injured patient. The patient is conscious and has potentially contaminated wounds.
- 8:15 AM Weirton Medical Center is notified that a person has been injured who is potentially contaminated.
- 8:55 AM Ambulance leaves for the hospital.
- 8:55 AM Weirton Medical Center is notified that the ambulance is enroute.
- 9:00 AM Ambulance arrives at the hospital and the patient is removed from the ambulance. The ambulance is sent (simulated) to the Emergency Worker Decontamination Center.
- 9:40 AM After the patient is stabilized and decontaminated, clean-up of the Emergency Room area begins (clean-up may be explained rather than demonstrated).
- 9:45 AM Exercise ends.
- 10:00 AM Critique.

Time listed is variable and subject to change

CONTROLLER PROMPTS

- 8:00 AM **Ambulance Company Controller** provides notification that the plant has declared a Site Area Emergency
- 8:10 AM **Ambulance Company Controller** provides notification that the plant has declared a General Emergency
- 8:15 AM **Ambulance Company Controller** provides notification to the Ambulance Company that a person has been injured; the extent of injuries is not known at this time, but it is known the patient is possibly contaminated. The injured is at the accident staging area (parking lot or garage of the Ambulance Squad)
- * During assessment of the patient at the Accident Staging Area, inform the EMT of the injuries as indicated by Attachments 1 and 2 (Page A-1 and A-2)
- 8:55 AM **Ambulance Company Controller** releases the ambulance to leave for Weirton Medical Center at this time. Caution the driver not to use his emergency lights or siren. Ambulance should obey all traffic regulations in transit
- 9:00 AM Release the patient from the ambulance at this time
-

- 8:00 AM **Weirton Medical Center Controller** notifies the ER Charge Nurse that the plant has declared a Site Area Emergency
- 8:10 AM **Weirton Medical Center Controller** notifies the Hospital that the plant has declared a General Emergency
- 8:15 AM **Weirton Medical Center Controller** provides notification to the Hospital that a person has been injured; the extent of injuries is not known at this time, but it is known the patient is possibly contaminated. The injured is at the accident staging area (parking lot or garage of the New Cumberland Ambulance Service)
- 8:55 AM **Weirton Medical Center Controller** provides notification that the ambulance is enroute
- 9:00 AM Patient arrives at the Hospital

CONTROLLER ASSIGNMENTS

WAARS	Dave Linkimer	412-720-2940
Weirton Medical Center	Sam Paletta	724-495-9945

TELEPHONE NUMBERS/ADDRESSES

Weirton Medical Center
601 Colliers Way
Weirton, WV 26062
Emergency Department Telephone # 304-797-6100

Weirton Area Ambulance & Rescue Squad (WAARS)
1305 Pennsylvania Ave.
Weirton, WV 26062
Telephone Number 304-797-1233

**PLEASE BEGIN AND END ALL TELEPHONE CONVERSATIONS
WITH "THIS IS A DRILL".**

ATTACHMENT 1

INJURED PERSON DATA

Situation: Emergency Worker assigned to vehicle decontamination trips over a fire hose and lands against a curb.

Injuries: The victim has a broken right ankle (not immediately known without X-rays) and is complaining of great pain in the area. The victim's right elbow/forearm area is also abraded and bruised. The right knee is bruised and abraded.

Blood Pressure: 100/60
Pulse: 90
Breathing: 22
Temperature: Normal
Skin: Pale
No Nausea
Vision: Clear, eyes equal and reactive

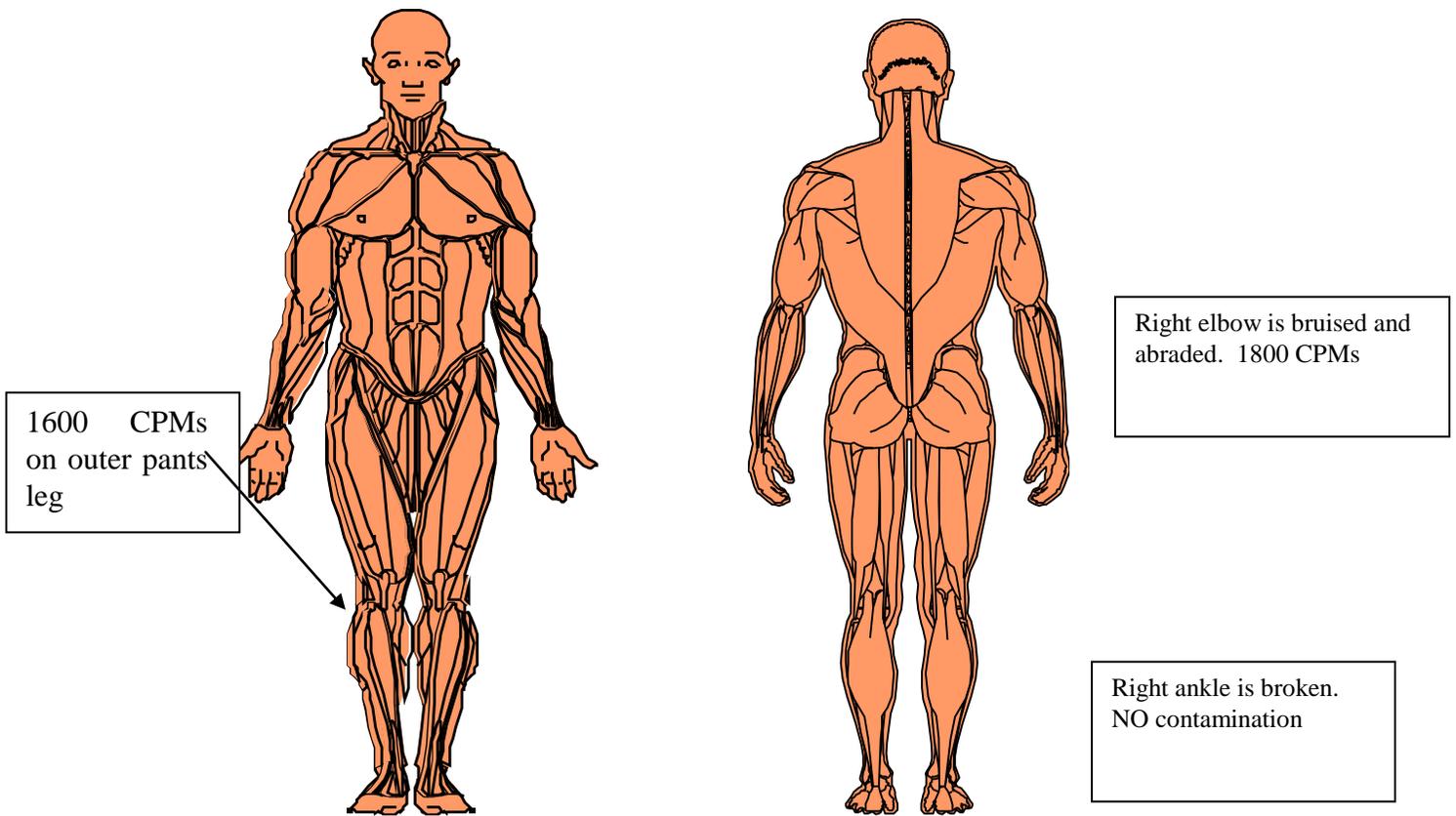
Patient may give own answer on all other queries.

Contamination:

- A. Contamination readings of 1600 cpm on right knee. Removal of pant legs eliminates reading.
- B. Broken right ankle.
- C. Right elbow bruised and abraded. Contamination of 1800 cpm. First decon attempt decreases readings to 800 cpm. Second attempt results in less than 100 cpm.

ATTACHMENT 2

INDICATES AREAS OF CONTAMINATION/INJURY



Removal of outer garments eliminates contamination on right leg.

Right elbow is reading 1800 cpm on initial reading. First decon attempt decreases reading to 800 cpm. Second decon attempt results in reading of less than 100 cpm.

Right ankle is broken. No contamination identified.

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