Beaver Valley Power Station
Shippingport, PA
Washington Hospital Pennsylvania
After Action Report
Exercise Date – March 30, 2023
Radiological Emergency Preparedness (REP) Program

Published April 30, 2023

FEMA

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Beaver Valley Power Station Medical Services Drill After Action Report

Published Date: April 30, 2023

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EXECUTIVE SUMMARY

On March 30, 2023, a Medical Services Drill was conducted for the 10-mile Plume Exposure Pathway, Emergency Planning Zone (EPZ) around the Beaver Valley Power Station (BVPS) by the Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA) Region 3. The most recent prior Medical Services Drill for this site was conducted virtually and through the granting of exercise credit on April 1, 2021 due to the ongoing Covid-19 Public Health Emergency

The purpose of the BVPS Medical Services Drill was to assess the State and local offsite response organizations' preparedness in responding to a radiological medical emergency. The Drill was held in accordance with FEMA's policies and guidance concerning the evaluation of State and local Radiological Emergency Response Plans (RERP) and procedures.

FEMA wishes to acknowledge the efforts of the many individuals in the Commonwealth of Pennsylvania, the Washington Hospital, and the Washington County Ambulance & Chair and Washington County HazMat who were evaluated during 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 as volunteers providing vital emergency services twenty-four (24) hours a day to the communities in which they live. Cooperation and teamwork of all the participants was observed during this Drill.

This report contains the final evaluation of the Medical Services Drill. The Commonwealth of Pennsylvania, the Washington Hospital, and the Washington County Ambulance & Chair and Washington County HazMat demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There were no Level 1 or Level 2 Findings or Plan Issues as a result of this Drill.

Section 1 of this report, entitled Overview, presents the Exercise Planning Team and the Participating Organizations.

Section 2 of this report, entitled Design Summary, and includes the Purpose and Design, Objectives, Capabilities, and Activities, and the Scenario Summary.

Section 3 of this report, entitled Analysis of Capabilities contains detailed Exercise Evaluation and Results; a Summary Results of Evaluation; and Capability Target Demonstration and Evaluation Guidance Summary. Information on the demonstration for each jurisdiction or functional entity evaluated is presented in a jurisdiction-based, issue-only format.

Section 4 of this report, entitled Conclusion, is a description of FEMA's overall assessment of the capabilities of the participating organizations.

SECTION 1: EXERCISE OVERVIEW

1.1 Drill Details

Drill Name
2023 Washington Hospital Medical Services Drill

Type of Drill
Medical Services

Drill Date
March 30, 2023

Program
Department of Homeland Security/FEMA Radiological Emergency Preparedness Program

Scenario Type
Radioactive Contaminated/Injured Person

1.2 Planning Team Leadership

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1.3 Participating Organizations

Agencies and organizations of the following jurisdictions participated in the 2023 BVPS Medical Services Drill:

State Jurisdiction

Commonwealth of Pennsylvania

- Pennsylvania Emergency Management Agency

Support Jurisdiction

- Washington County Department of Public Safety
- Washington County Ambulance & Chair and Washington County Hazmat

Private Organizations

- Washington Hospital

SECTION 2: DESIGN SUMMARY

2.1 Purpose and Design

On December 7, 1979, the President directed the Federal Emergency Management Agency (FEMA) to assume the lead responsibility for all off-site radiological planning and response. FEMA's activities were conducted pursuant to 44 Code of Federal Regulations (CFR) Parts 350, 351 and 352. These regulations are a key element in the Radiological Emergency Preparedness (REP) Program that was established following the Three Mile Island accident in March 1979.

44 CFR 350 establishes the policies and procedures for FEMA's initial and continued approval of State and local governments' radiological emergency planning and preparedness for commercial nuclear power plants. This approval is contingent, in part, on State and local government participation in joint exercises with licensees. FEMA's responsibilities in radiological emergency planning for fixed nuclear facilities include the following:

A. Taking the lead in offsite emergency planning and in the review and evaluation of radiological emergency response plans and procedures developed by State and local governments,
B. Determining whether such plans and procedures can be implemented on the basis of observation and evaluation of exercises of the plans and procedures conducted by State and local governments,
C. Responding to requests by the U.S. Nuclear Regulatory Commission (NRC) pursuant to the Memorandum of Understanding between the NRC and FEMA dated December 7, 2015 (Federal Register, Vol. 81, No. 57, March 24, 2016) and,
D. Coordinating the activities of the following Federal agencies with responsibilities in the radiological emergency planning process:
   - U.S. Department of Commerce
   - U.S. Nuclear Regulatory Commission
   - U.S. Environmental Protection Agency
   - U.S. Department of Energy
   - U.S. Department of Health and Human Services
   - U.S. Department of Transportation
   - U.S. Department of Agriculture
   - U.S. Department of the Interior
   - U.S. Food and Drug Administration

Representatives of these agencies serve on the Region 3 Regional Assistance Committee (RAC), which is chaired by FEMA. A Radiological Emergency Preparedness Medical Services Drill was conducted on March 30, 2023, to assess the capabilities of State and local emergency preparedness organizations in implementing their Radiological Emergency Response Plans (RERP) and procedures to protect the public health and safety during a radiological emergency involving the Beaver Valley Power Station.

The purpose of this exercise report is to present the drill results and findings on the performance of the off-site response organizations (OROs) during a simulated radiological emergency involving a contaminated injured individual.

The drill was designed to demonstrate and evaluate the responder's knowledge of patient and responder personal protective measures, equipment preparation and employment, and decontamination procedures. All activities were demonstrated in accordance with the participants' plans and procedures as they would be performed in an actual emergency, except as agreed to in the Exercise Plan and Extent-of-Play (EOP) Agreement.

The findings presented in this report are based on the evaluations of the Federal evaluator team, with final determinations made by the FEMA Region 3 Regional Assistance Committee (RAC) Chairperson and approved by FEMA Headquarters. These reports are provided to the Nuclear Regulatory Commission (NRC) and participating States. State and local governments utilize the findings contained in these reports for the purposes of planning, training, and improving emergency response capabilities.

The Capability Target utilized in the FEMA evaluation process are contained in the following:

- NUREG-0654/FEMA-REP-1, Rev. 2, "Capability Target for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," December 2019; and
- Radiological Emergency Preparedness Program Manual, December 2019.

2.2 Objectives, Capabilities and Activities

The Beaver Valley Power Station Medical Services Drill evaluated by FEMA was designed to demonstrate that the ORO can transport, transfer, monitor, decontaminate and treat a contaminated/injured person while minimizing any cross contamination during a radiological emergency. The demonstration included the ability to:

A. Respond to a radiation medical emergency following Washington County Emergency Services and the Washington Hospital procedures.
B. Monitor for radiation contamination and uptake, and to validate persons providing these services are adequately prepared to handle contaminated individuals.
C. Conduct timely and accurate communications between the hospital and offsite response agencies.
D. Exhibit correct priorities and appropriate techniques in Emergency Medical Services (EMS); transportation of patients; and pre-hospital and hospital emergency care of patients contaminated with radiation.
E. Demonstrate inter-agency cooperation between the Washington County Emergency Services and the Washington Hospital.

2.3 Scenario Summary

The scenario began at 0802 with a notification to the Washington Hospital, the Washington County Ambulance & Chair, and the Washington County HazMat, via an exercise controller inject, that a Site Area Emergency (SAE) was declared at the Beaver Valley Power Station(BVPS).

At 0811, Washington Hospital was notified that a General Emergency (GE) was declared at BVPS and that there was an accident outside the plant. An emergency worker was instructing a training class at a local Fire Department when the incident at Beaver Valley Power Station

occurred. They left the fire department as the incident escalated and reported to a public monitoring and decontamination station in Washington County to assist in augmenting staff. A short time after their arrival, the victim/patient experienced shortness of breath, dizziness, and fainted.

At 0819 the Washington County Ambulance & Chair and Washington County HazMat were directed to pick-up the patient for transport to the hospital. At 0847 the hospital was notified that the EMS were enroute with a potentially contaminated patient and provided an estimated arrival of 0900.

At 0900 the ambulance arrived at the hospital and conducted a clean transfer of the patient to the medical staff. In preparation for receiving the patient, the hospital Radiation Safety Officer mobilized the Radiation Emergency Area (REA) staff and conducted a radiological safety briefing to the hospital staff along with a set-up of the REA prior to the patient arrival.

The patient was appropriately treated for injuries and decontaminated prior to release from the hospital. The exercise was terminated at 1000.

SECTION 3: ANALYSIS OF CAPABILITIES

3.1 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 30, 2023 Beaver Valley Power Station Medical Services Drill. The Drill was conducted to demonstrate the ability of the OROs to respond to a potentially contaminated injured person.

Each jurisdiction and functional entity were evaluated on the basis of their demonstration of the appropriate Demonstration and Evaluation Guidance contained in the REP Program Manual. Detailed information on the Demonstration and Evaluation Guidance, and the Extent-of-Play Agreement is found in Appendix C.

The Drill was conducted and evaluated in accordance with the Radiological Emergency Preparedness Program Manual (December 2019) and NUREG-0654/FEMA-REP-1, Rev. 2. These Capability Targets included:

1.2 - Direction and Control, equipment, maps, displays, monitoring instruments, dosimetry, Potassium Iodide (KI) and other supplies are sufficient to support emergency operations.

2.2 - Emergency Worker Exposure Control Management

5.3 - Transportation and Treatment of Contaminated, Injured Individuals

3.2 Summary Results of Evaluation

The matrix presented in Table 3.1, on the following page, presents the status of the Capability Targets from the REP Program Manual that were scheduled for demonstration during this Drill by all participating jurisdictions and functional entities. Drill Demonstration and Evaluation Guidance are listed by number and the demonstration status of the Capability Target is indicated by the use of the following letters:

- (L1) Level 1 Finding: An observed or identified inadequacy of organizational performance in an assessment activity that could cause a determination that offsite emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken in event of a radiological emergency to protect the health and safety of the public living in the vicinity of a Nuclear Power Plant.
- (L2) Level 2 Finding: An observed or identified inadequacy of organizational performance in an assessment activity that is not considered, by itself, to adversely impact public health and safety.
- (P) Plan Issue: An observed or identified inadequacy in the off-site response organizations' emergency plan/implementing procedures, rather than that of the ORO's performance.
- (N) Not Demonstrated: The term applied to the status of a REP Evaluation Area Criterion indicating that the ORO, for a justifiable reason, did not demonstrate the Evaluation Area Criterion, as required in the Extent-of-Play Agreement or at the two-

year or eight-year interval required in the FEMA REP Program Manual.

- (M) Met: The status of a REP Evaluation Area Criterion indicating that the participating ORO demonstrated all demonstration Capability Target for the Evaluation Area Criterion to the level required in the Extent-of-Play Agreement with no findings assessed in the current exercise and no unresolved prior findings.

Table 3.1 – Summary of Drill Evaluation

Date: 2023 March 30 Site: Beaver Valley Power Station (M) Met, (1) Level 1 Finding, (2) Level 2 Finding, (P) Planning Issue	Capability Targets	Washington Hospital	Washington County Ambulance & Washington County HazMat
Objective 1: Emergency Operations Management			
Direction and Control, Facilities, Equipment, Supplies to Support Operations	1.2	M	M
Objective 2: Exposure Control			
Emergency Worker Exposure Control Management	2.2	M	M
Objective 5: Operate			
Transportation/Treatment of Contaminated, Injured Individuals	5.3	M	M

3.3. Capability Targets Evaluation Summaries

3.3.1 Private Organizations

In summary, the status of DHS/FEMA Capability Target for the Private Sector Organizations are as follows:

3.3.1.1 Washington Hospital

a. Met: 1.2, 2.2, 5.3
b. Level 1 Findings: NONE
c. Level 2 Findings: NONE
d. Plan Issues: NONE
e. Prior Issues – Resolved: NONE
f. Prior Issues – Unresolved: NONE

3.3.1.2 Washington County Ambulance & Chair and Washington County HazMat

a. Met: 1.2, 2.2, 5.3
b. Level 1 Findings: NONE
c. Level 2 Findings: NONE
d. Plan Issues: NONE
e. Prior Issues – Resolved: NONE
f. Prior Issues – Unresolved: NONE

SECTION 4: CONCLUSION

The Commonwealth of Pennsylvania and private sector organizations demonstrated knowledge of their radiological emergency response plans and procedures and they were successfully implemented during the Beaver Valley Power Station Medical Services Drill evaluated on March 30, 2023.

Two FEMA evaluators provided analyses of three Capability Targets. These analyses resulted in a determination of no Findings, no new Plan issues, and no unresolved Plan Issues.

The Washington County Ambulance & Chair and Washington County HazMat successfully demonstrated that necessary equipment and supplies were available to support the treatment of an injured/contaminated patient, and prioritized life-saving medical practices over contamination concerns, implemented protective measures through the use of personal protective equipment, regular glove changes, and control of cross contamination. Appropriate patient assessments were demonstrated as well as regular and ongoing communications with the Washington Hospital.

The Washington Hospital successfully demonstrated the mobilization of staff, staffing assignments, issue of dosimetry and monitoring equipment, and effective use of personal protective equipment during the exercise. The hospital staff effectively responded to communications from the Washington Hospital Dispatcher initiated the set-up and management of a Radiation Emergency Area (REA), and accepted and successfully treated an injured/contaminated patient while administering life-saving medical attention over contamination concerns. In addition, the medical facility provided security control of the facility and overall protective measures for contamination control and prevention of cross-contamination.

Based on the results of the Drill and a review of the offsite radiological emergency response plans and procedures submitted, FEMA Region 3 has determined they are adequate (meeting the planning and preparedness standards of NUREG-0654/FEMA-REP-1, Revision 2, December 2019, as referenced in 44 CFR 350.5) and there is reasonable assurance they can be implemented, as demonstrated during this Drill.

An Improvement Plan (IP) will not be developed as part of this report.

APPENDIX A: EVALUATORS AND TEAM LEADERS

The following is the list of Evaluators and Team Leaders for the Beaver Valley Power Station Medical Services Drill evaluated on March 30, 2023. The following constitutes the managing staff for the evaluation:

- Tina Thomas, DHS/FEMA, Emergency Management Specialist
- Joseph Suders, DHS/FEMA, Senior Emergency Management Specialist

DATE: March 30, 2023
SITE: Beaver Valley Power Station

LOCATION	EVALUATORS	AGENCY
Washington Hospital	Joseph Suders	FEMA R3
Washington County Ambulance & Chair and Washington County HazMat	Tina Thomas	FEMA R3

APPENDIX B: ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
AAR	After Action Report
ALARA	As Low As Reasonably Achievable
ALC	Annual Letter of Certification
ANS	Alert and Notification System
BRP	Bureau of Radiation Protection
DHS	Department of Homeland Security
DRD	Direct Reading Dosimeter
EMS	Emergency Medical Services
EOP	Extent of Play
EPZ	Emergency Planning Zone
FEMA	Federal Emergency Management Agency
FMT	Field Monitoring Team
GE	General Emergency
IP	Improvement Plan
KI	Potassium Iodide
BVPS	Beaver Valley Power Station
MS	Medical Services
NRC	Nuclear Regulatory Commission
ORO	Offsite Response Organization
PEMA	Pennsylvania Emergency Management Agency
PPE	Personal Protective Equipment
PRD	Permanent Record Dosimeter
RAC	Regional Assistance Committee
REA	Radiation Emergency Area
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
SAE	Site Area Emergency
SAV	Staff Assistance Visit
SOP	Standard Operating Procedure

APPENDIX C: EXTENT-OF-PLAY AGREEMENT

The Extent-of-Play Agreement was extracted from the Exercise Plan, which was drafted by the Pennsylvania Emergency Management Agency, and is included in this report as an Appendix. The Extent-of-Play was negotiated and agreed upon by FEMA Region 3, and the Pennsylvania Emergency Management Agency.

The Exercise Plan was created as an overall tool for facilitation and implementation of the BVPS Medical Services Drill and to integrate the concepts and policies of the Homeland Security Exercise Evaluation Program with the Radiological Emergency Preparedness Program Exercise Methodology.

Method of Operation and Extent of Play

Beaver Valley Power Station Medical Services Exercise
March 30, 2023

Method of Operation

1. The power station and its personnel will not play as active role in the facilitation of this exercise. The plant's simulated events, radiation releases, and emergency classifications will be injected by offsite Controllers. A pre-approved scenario will be used.

2. PEMA, Western Area Office will not be activated as part of this exercise. The Exercise Coordinator will provide pre-exercise coordination and observe exercise activities.

3. PEMA and Energy Harbor will participate as Controllers in this exercise.

4. Washington County Public Safety will participate in this exercise.

5. Controllers will be supplied by PEMA. Controllers are not players and will provide injects and information to initiate and stimulate exercise play by providing radiological readings during the monitoring of personnel. Live radioactive sources will only be used to perform operational checks of radiological monitoring instruments.

6. PEMA staff and qualified county emergency management personnel will be assigned to key locations for the purpose of observing, noting response actions and conditions, and recording observations for future use. Observers will not take an active part in the proceedings but will interact with staff members to the extent necessary to fulfill their observer responsibilities. Coaching of players is not permitted, except as appropriate to provide training to participants awaiting a re-demonstration.

7. Department of Homeland Security (DHS), FEMA, Radiological Emergency Preparedness Program (REPP) Evaluators: FEMA Evaluators will be present at designated demonstration locations.

8. Exercise activities are scheduled to commence on or about 8:00 a.m. March 30, 2023, and continue until the participants have completed the exercise objectives and demonstrated the Exercise Capability Targets.

9. Participants and agencies will Stand Down when the Controllers have confirmed with the Evaluators that all evaluation capability targets have been demonstrated and when the State and County Observers are satisfied that the objectives have been met.

10. An emergency plan is drafted to address the generally expected conditions of an emergency. Not everything in the emergency plan may be applicable for a given scenario. The main purpose of an emergency plan is to assemble sufficient expertise and officials so as to properly react to the events as they occur. The responders should not be so tied to a plan that they cannot take actions that are more protective of the public. Therefore, if, by not following the plan, the responders protect the public equally, as well as provided in the plan, it should be noted for possible modification of the plan, but not classified as a negative incident. Furthermore, if by following the plan there is a failure to protect the public health and safety, it should be noted so that the plan can be modified, documented as a possible planning concern, and the appropriate negative assessment corrected.

11. During the exercise, any activity that is not satisfactorily demonstrated may be re-demonstrated by the participants during the exercise, provided it does not negatively interfere with the exercise. Refresher training may be provided by the players, observers, and/or Controllers. Evaluators are not permitted to provide refresher training. Re-demonstrations will be negotiated between the Players, Observers, Controllers, and Evaluators. PEMA may advise the Regional Assistance Committee Chair prior to initiating any re-demonstrations. It is permissible to extend the demonstration window, within reason, to accommodate the re-demonstration. Activities corrected from a re-demonstration will be so noted.

Objectives

A. Demonstrate the ability to respond to a radiation medical emergency following the procedures of Washington County Public Safety, Washington County Ambulance & Chair and Washington County HazMat, and Washington Hospital.

B. Demonstrate timely and accurate communications between the hospital and offsite response agencies. (Telephones will be used in lieu of radios whenever possible to limit the potential misinterpretation of the exercise as an actual event.)

C. Demonstrate correct priorities and appropriate techniques in EMS, transportation of patients and pre-hospital and hospital emergency care of radioactively contaminated patients.

D. Demonstrate inter-agency cooperation between the ambulance company/EMS and the hospital.

OBJECTIVE 1 – Emergency Operations Management

Capability Target 1.2: Direction and Control *(Vice Sub-Element 1.b.1, 1.c.1, 1.e.1)*
Core Capabilities: Emergency Medical Services; Planning
Recommended Evaluation Frequencies: At every assessment activity
Recommended Assessment Activities: Exercise; Drill
Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (A.1, A.1.a, A.1.b, A.1.c, A.2, A.3, A.5, C.2, C.2.a, C.2.b, C.3, D.4, E.1, H.6, and O.1)
Intent: The capability to provide overall direction and control of response efforts, commensurate with the responsibilities of leadership, as detailed in plans/procedures.

Demonstration and Evaluation Guidance:

1. Conduct briefings in a timely manner.
- Were briefings conducted in a timely manner?
- What information was provided?
- How frequently were briefings held?
- Who gave the briefing?
2. Maintain situational awareness.
- Did the ORO maintain situational awareness? How?
3. Coordinate response activities with other organizations.
- Were response activities coordinated with other organizations? How?
4. Obtain resources to support emergency operations.
    - Were resources obtained to support emergency operations (e.g., through MOUs or other agreements)?
- Was just-in-time training provided, as necessary?
5. Provide and maintain adequate facilities and equipment to support the emergency response.
- Were facilities and equipment adequate to support operations? How so?
    - Was the facility evacuated during the plume? What means of monitoring and decontamination were used?

All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

PEMA Negotiated Extent of Play:
Ambulance crews are not trained or equipped to operate or carry radiological monitoring equipment. In accordance with the PEMA SOP Annex E, Appendix 5 "Radiological Exposure Control" (March 2002), ambulance crews operating outside the 10-mile Emergency Planning Zone are considered "Category C" emergency workers; therefore, they are only required to implement protective measures consistent with protection against blood-borne pathogens; i.e., long sleeved garments, trousers, impermeable gloves, and surgical masks. "Category C" emergency worker dosimetry issue consists of one permanent reading dosimeter per worker. Ambulance crews are provided additional dosimetry if they are tasked with entering the 10-mile EPZ. *Hospital personnel are also considered "Category C" emergency workers and will conform to PEMA SOP protective measures at minimum. Direct Reading Dosimeters may be issued individually or an Area Kit may be established in the Radiation Emergency Area (REA). Individual PRDs will be issued by the hospital. Radiological Survey Instruments are calibrated per manufactures recommendations.*

OBJECTIVE 2 - Exposure Control

Capability Target 2.2: Emergency Worker Exposure Control Management *(VICE Sub-Element 3.a.1)*
Core Capabilities: Operational Coordination; Environmental Response/Health and Safety; Planning
Recommended Evaluation Frequencies: Biennially
Recommended Assessment Activities: Exercise; Drill
Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (C.2.c, H.11, H.11.b, K.2.b, K.3, K.3.a, M.1.b, and O.1)
Intent: The capability of emergency workers to manage dose and exposure, use equipment (e.g., dosimetry, radio protective drugs), and identify procedures to monitor their exposure and dose, including following procedures to obtain authorization to receive emergency exposures in excess of the PAGs.

Demonstration and Evaluation Guidance:

1. Maintain an appropriate inventory of PRDs.
- What type of PRDs were used?
- Was the inventory of available PRDs sufficient for the number of workers?
- How many PRDs were available?

2. Adequately distribute appropriate DRDs and PRDs.
- Was dosimetry distributed in a timely manner?
- Was dosimetry distributed appropriately to read identified exposure limits?
- Did workers receive personal dosimetry or group dosimetry?

3. Record and report exposures in the field.
- Did workers read and record dosimetry on a regular basis?
- At what frequency were readings recorded?
- To who were the readings reported?
- Who briefed emergency workers? Did the briefing include the following:
    - Ensuring dosimetry are zeroed or initial reading is recorded.
    - Frequency to read and record dosimeters.
    - The process of reporting exposures.
    - Proper placement of dosimeters.
    - Proper use of PRDs.
    - The location to report to for monitoring and decontamination.

4. Report to individual responsible for managing exposure and dose when limits are reached.
- What was the identified exposure limit?
    - What was the dosimeter correction factor and how was it communicated to emergency workers?
- What is the process for receiving approval for exceeding exposure limits and dose limits?
    - Who authorized emergency workers to exceed limits or replace a worker who has reached exposure limits?
- Who coordinated with offsite emergency workers who were performing duties onsite?

All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

PEMA Negotiated Extent of Play:

- *Demonstrate appropriate procedures and equipment to manage radiological exposure to staff.*
- *Demonstrate the ability to transport contaminated/injured individuals while using ALARA principles.*
- *Demonstrate the ability to utilize dosimetry, equipment, and procedures to manage radiological exposure to emergency workers as required by plans.*

diological briefings will be provided to address exposure limits and procedures to replace personnel approaching limits and how permission to exceed limits is obtained. At any time, players may ask other players or supervisors to clarify radiological information. In Pennsylvania, emergency workers outside the EPZ do not have turn-back values. Standard issue of dosimetry and potassium iodide for each category of emergency worker is as follows:

Category A: 1 PRD, 1 DRD, and 1 unit of KI
Category B: 1 PRD and 1 unit of KI
Category C: 1 PRD

NOTE: *As per Annex E, Appendix 5, page E-5-35, "Emergency responders located outside the EPZ who, due to assigned taskings during a nuclear emergency, have limited potential for radiation exposure (e.g., monitoring/decontamination teams, Medical Services hospital staffs). Transporters of contamination or potentially contaminated individuals outside of the EPZ are not provided dosimetry.*

All locations that have dosimetry equipment indicated within their Radiological Emergency Response Plan (RERP) will make the dosimetry equipment (and KI, as appropriate) available for inspection by the Federal Evaluator. Simulation PRDs with mock serial numbers may be used.

OBJECTIVE 5 - Operate

Capability Target 5.3: Transportation and Treatment of Contaminated, Injured Individuals *(Vice Sub-Element: 6.d.1)*
Core Capabilities: Environmental Response/Health and Safety; Public Health, Healthcare, Emergency Medical Services; Planning
Recommended Evaluation Frequencies: Biennially
Recommended Assessment Activities: Medical Services Drill (N.4.b)
Planning Reference: NUREG-0654/FEMA-REP-1, Rev. 2 (C.2.d, F.2, H.11, H.12, J.2, K.3, K.4, L.1, L.3, L.4, and O.1)
Intent: The capability to provide medical transport and treatment services to contaminated, injured individuals.

Demonstration and Evaluation Guidance:

Transportation

1. Transport contaminated, injured individuals to medical facilities.

- Who dispatched the medical transport provider and what information was provided?
- Did the appropriate briefings occur? What was contained in the briefings?
    - Which agency or agencies demonstrated the transportation of contaminated, injured individuals to appropriate medical facilities?
    - What type of vehicle was used for the transportation of the contaminated, injured individuals?
    - Was the site of pick-up in a potentially contaminated area? If so, what precautions were taken?
    - How did the medical transport provider know to take radiological precautions with the contaminated, injured individual?
    - Was the contaminated, injured individual monitored for radiological contamination before arrival or during initial evaluation by the transport provider?
- Who did the monitoring?
- What survey instruments were used?
- Were the instruments current in calibration?
- Did medical care take priority over monitoring?
    - Were instruments and equipment operationally checked using an appropriate check source against a known range of reading to verify proper operation?
- What contamination control measures were taken by the medical transport crew?
    - How was the patient transferred from the medical transport vehicle to the medical facility?
    - Were accident scene survey records transferred to the medical facility staff? Was the transfer made taking care not to spread contamination?
    - Was the medical transport crew knowledgeable about where the medical transport vehicle (or other transport vehicle) and crew would be monitored and decontaminated?
    - Where and by whom will the medical transport crew and medical transport vehicle (or other transport vehicle) be monitored and decontaminated, if required?

2. Maintain communications between the medical transportation provider and the receiving medical facility.

    - What communications occurred between the medical transport crew and the receiving

hospital? How?

Medical Facility

1. Operationally check instruments and equipment.

- How were background measurements obtained on a continuous basis?
- What survey instruments were used?
- Were the instruments current in calibration?
    - Were instruments and equipment operationally checked using an appropriate check source against a known range of reading to verify proper operation?
    - Was an appropriate radioactive check source used to verify proper operational response for each low-range radiation measurement instrument?
    - Did the receiving facility personnel don the appropriate PPE in accordance with procedures and in a manner to prevent the spread of contamination?

2. Set-up, activate, and operate an REA.
    - How was the hospital notified to establish a REA? With regard to the REA, what information was provided to the medical facility by the medical transport crew?
    - Were staff, equipment, and supplies readily available for monitoring and decontamination, and setting up the REA?

- How was access into the REA controlled?
    - Did urgent medical care take precedence over monitoring, decontamination, and contamination control efforts by facility medical staff?
- Who performed and/or supervised treatment of contaminated, injured individuals?
    - What equipment and supplies were available for treatment of contaminated, injured individuals?
    - How were items assured to be free of contamination before they were transferred out of the REA to the clean area?
- After treatment and decontamination, how was the individual transferred out of the REA?
- How did the staff exit the REA?
- Was a doffing procedure correctly implemented?
    - Was the REA, and equipment within, monitored for contamination prior to returning it to normal operations?

3. Monitor and decontaminate the individual, equipment, and other items.
    - How were monitoring (i.e., survey measurements and samples) results documented and recorded?
    - Did the medical staff make decisions on the need for decontamination of the individual and follow appropriate decontamination procedures?

- What contamination threshold triggers the need for decontamination of the individual?
    - What methods were used to decontaminate the potentially contaminated individual (once that person is medically stabilized)? Were decontamination methods progressive (e.g., mild decontamination used prior to scrubbing)?
- What procedure was used if decontamination was not successful?
    - What methods were used to collect and analyze samples, including swabs and skin wipes?
- Who did the monitoring? What equipment was used?
- What records were maintained with regard to survey and decontamination?
    - What was the procedure for handling, decontaminating, and storage of contaminated items?

- What was the action level to determine if equipment was contaminated or not?
- Who decontaminated the equipment and other items?
- How was wastewater from decontamination operations handled?
- What contamination control measures were taken?

All activities must be based on the ORO's plans/procedures and completed as they would be in an actual emergency, unless noted above or otherwise specified in the Extent-of-Play Agreement.

PEMA Negotiated Extent of Play:
Demonstrate that the facility has the appropriate space, adequate resources, and trained personnel to provide monitoring, decontamination, and medical services to contaminated/injured individuals. *Demonstrate the ability to transport contaminated/injured individuals while using ALARA principles.* *Washington County Ambulance & Chair and Washington County HazMat will pick-up a pre-staged simulated contaminated/injured patient.* *EMS Crews do not carry survey equipment therefore do not survey patients.*

Appendix C: Participating Agencies

See Appendix B, Method of Operations and Extent of Play.

Appendix D: Action Location Addresses

ACTION LOCATION ADDRESSES	
Venue	**Address**
Washington Hospital Victor Wilson,	155 Wilson Avenue Washington, Pennsylvania 15301
Washington County Ambulance & Chair and Washington County HazMat Bill Mahan,	75 Braden Street Washington, Pennsylvania 15301
Washington County Department of Public Safety Daniel Harvey	100 West Beau Street, C1 Washington, Pennsylvania 15301

Appendix E: Open Issues

No Open Issues

Appendix F: Acronyms

Acronym	Description
AAC	Accident Assessment Center
AAM	After-Action Meeting
AAR	After-Action Report
ACP	Access Control Point
ALARA	As Low As Reasonably Achievable
ALC	Annual Letter of Certification
ANS	Alert and Notification System
ANSI	American National Standards Institute
ARC	American Red Cross
ARES	Amateur Radio Emergency Services
A-Team	Advisory Team for Environment, Food, and Health
BRP	Bureau of Radiation Protection
BURA	Back Up Route Alerting
BVPS	Beaver Valley Power Station
BZ	Buffer Zone
CAD	Computer Aided Display
C/E	Controller and Evaluator
CED	Committed Effective Dose
CC	Core Capabilties
CCC	Congregate Care Center
CDC	U.S. Center for Disease Control and Prevention
CCL	Core Capabilities List
CCNP	Cisco Certified Network Professional
CCNPP	Calvert Cliffs Nuclear Power Plant
C/E	Controller Evaluator
CDE	Committed Dose Equivalent
CDV	Civil Defense Victoreen
CERC	Corporate Emergency Response Center
CERT	Community Emergency Response Team
CFR	Code of Federal Regulations
CNS	Commonwealth Notification System
C&O	Concepts and Objectives Meeting
CO	Communication Officer
COL	Combined Operating License
CPG	Comprehensive Preparedness Guide
CPM	Counts Per Minute
CRCC	Commonwealth Response Coordination Center
CST	Civil Support Team
DAC	Dose Assessment Coordinator
DAD	Digital Alarming Dosimetry
DAS	Director of Auxillary Services
DCPM	Disintegrating Counts Per Minute
DDHS	U.S. Department of Health and Human Services
DEMA	Delaware Emergency Management Agency
DHS	U.S. Department of Homeland Security
DIL	Derived Intervention Level
DIR	Disaster Initiated Review
DOE	U.S. Department of Energy

DOT	U.S. Department of Transportation
DRD	Direct Reading Dosimeter
DRF	Dosimetry Record Form
DRL	Derived Response Level
DSP	Delaware State Police
EA	Exception Area
EA	Exclusion Area
EA	External Affairs
EAC	Evacuation Assembly Center
EAL	Emergency Action Level
EARA	Exception Area Route Alerting
EAS	Emergency Alert System
EC	Emergency Coordinator
EEG	Exercise Evaluation Guide
ECL	Emergency Classification Level
ECO	Exposure Control Officer
EDE	Effective Dose Equivalent
EMC	Emergency Management Coordinator
EMD	Emergency Management Director
EMnet	Emergency Management Network
EMS	Emergency Medical Services
ENS	Emergency Notification System
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EOP	Extent of Play
EPA	U.S. Environmental Protection Agency
EPT	Exercise Planning Team
EPZ	Emergency Planning Zone
ER	Emergency Room
ERDS	Emergency Response Data System
ERM	Emergency Response Manager
ERO	Emergency Response Organization
ERV	Emergency Response Vehicle
ESC	Emergency Services Coordinator
ESF	Emergency Support Function
ESP	Early Site Permit
ETA	Estimated Time of Arrival
ETE	Evacuation Time Estimate
EW	Emergency Workers
EWMDS	Emergency Worker Monitoring and Decontamination Station
ExPlan	Exercise Plan
FBI	Federal Bureau of Investigation
FCC	U.S. Federal Communications Commission
FD	Fire Department
FDA	U.S. Food and Drug Administration
FE	Functional Exerise
FEMA	Federal Emergency Management Agency
FMT	Field Monitoring Team
FPE	Full Participation Exercise
FPM	Final Planning Meeting
FRMAC	Federal Radiological Monitoring Assessment Center
FRPCC	Federal Radiological Preparedness Coordinating Committee
FSE	Full Scale Exercise

FST	Field Sampling Team
FTC	Field Team Coordinator
GE	General Emergency
GIS	Geographic Information Systems
GM	Guidance Memorandum
G-M	Geiger-Mueller
GPS	Global Positioning System
Gy	Gray
HAB	Hostile Action Based
HAN	Health Alert Network
HHS	U.S. Health and Human Services
HazMat	Hazardous Materials
HF	High Frequency
HP	Health Physicist
HSEEP	Homeland Security Exercise and Evaluation Program
HSPD	Homeland Security Presidential Directive
IC	Incident Commander
ICP	Incident Command Post
ICS	Incident Command System
IP	Improvement Plan
IPAWS	Integrated Public Alert and Warning System
IPM	Initial Planning Meeting
IPZ	Ingestion Pathway Zone
IWP	Initial Warning Point
JIC	Joint Information Center
JIS	Joint Information System
KI	Potassium Iodide
LCD	Liquid Crystal Display
LEOF	Local Emergency Operations Facility
LGS	Limerick Generating Station
LHD	Local Health Department
LOA	Letter of Agreement
MCC	Mass Care Center
MDDT	Mobile Data Display Terminal
MDE	Maryland Department of Environment
MDEM	Maryland Department of Emergency Management
MDT	Mobile Data Terminals
MJOC	Media Joint Operations Center
MHz	Megahertz
MIDAS	Meteorological Information Dose Assessment System
MOU	Memorandum of Understanding
MSEL	Master Scenario Events List
MSP	Maryland State Police
NAPS	North Anna Power Station
NAWAS	National Warning System
NEP	National Exercise Program
NGO	Non-Governmental Organization
NIMS	National Incident Management System
NNSA	National Nuclear Security Administration
NOAA	National Oceanic and Atmospheric Administration
NPD	National Preparedness Directorate
NOUE	Notification of Unusual Event
NPP	Nuclear Power Plant

NPS	National Preparedness System
NRC	U.S. Nuclear Regulatory Commission
NRIA	Nuclear Radiological Incident Annex
NUREG	Nuclear Regulatory
NWS	National Weather Service
OCA	Owner Controlled Area
OJT	On-The-Job Training
OOS	Out of Sequence
ORH	Office of Radiological Health
ORO	Offsite Response Organization
OSC	Operations Support Center
OSD	Optically Stimulated Dosimeter
OSHA	U.S. Occupational Safety and Health Administration
OSLD	Optically Stimulated Luminescence Dosimeter
PA	Public Affairs
PAD	Protective Action Decision
PAG	Protective Action Guideline
PAR	Protective Action Recommendation
PARA	Primary Area Route Alerting
PAZ	Protective Action Zone
PCA	Preliminary Capabilities Assessment
PBAPS	Peach Bottom Atomic Powers Station
PD	Police Department
PDAFN	Persons with Disabilities/Access and Funtional Needs
PED	Personal Electronic Dosimeter
PEMA	Pennsylvania Emergency Management Agency
PII	Personally Identifiable Information
PIO	Public Information Officer
PPD	Presidential Policy Directive
PPE	Personal Protective Equipment
PPP	Post-Plume Phase
PRA	Primary Route Alerting
PRD	Permanent Record Dosimeter
PS	Planning Standard
PSP	Pennsylvania State Police
R	Roentgen
RA	Regional Administrator
R/h	Roentgen per hour
RAC	Regional Assistance Committee
RACES	Radio Amateur Civil Emergency Services
RAD	Radiation Absorbed Dose
RAO	Radiation Assessment Officer
RC	Reception Center or Relocation Center
RDO	Radiation Defense Officer
REA	Radiation Emergency Area
REC	Radiation Exposure Control
REM	Roentgen Equivalent Man (rem)
REP	Radiological Emergency Plan
REPP	Radiological Emergency Preparedness Program
RERP	Radiological Emergency Response Plan
RHP	Radiological Health Program
RML	Radiological Mobile Laboratory
RO	Radiological Officer

ROO	Radiological Operations Officer
RPM	Radiological Emergency Preparedness Program Manual
RSO	Radiation Safety Oficer
RTF	Radiological Task Force
SA	Staging Area
SAC	Staging Area Coordinator
SAE	Site Area Emergency
SAIC	Science Applications International Corporation
SAM	Staging Area Manager
SAV	Staff Assistance Visit
SCBA	Self-Contained Breathing Apparatus
SEOC	State Emergency Operations Center
SERS	State Emergency Radio System
SEVAN	State Emergency Voice Activation Network
SFMT	State Field Monitoring Team
SHC	Salem Hope Creek
SIP	Shelter In Place
SIRS	Statewide Interoperability Radio System
SME	Subject Matter Expert
SO	State Official
SOP	Standard Operating Procedure
SPS	Surry Power Station
SRO	School Resources Officer
SSES	Susquehanna Steam Electric Station
SSO	Social Services Officer
STARS	Statewide Area Radio System
SPS	Surry Power Station
Sv	Sievert (sv)
SWAN	State Warning Alert Notification
TAC	Technical Assistance Center
TACP	Traffic and Access Control Point
TCP	Traffic Control Point
TED	Total Effective Dose (whole body dose)
TEDE	Total Effective Dose Equivalent
TEP	Training and Exercise Plan
TEPW	Training and Exercise Planning Workshop
THD	Technological Hazards Division
THIRA	Threat and Hazard Identification and Risk Assessment
TLD	Thermoluminescent Dosimeter
TMI	Three Mile Island
TO	Transportation Officer
TSC	Technical Support Center
TTD/TTY	Telecommunication Device for the Deaf/TeleType
TTX	Tabletop Exercise
UEM	Utility Emergency Manager
USDA	U.S. Department of Agriculture
UTL	Universal Task List
VDEM	Virginia Department of Emergency Management
VDH	Virginia Department of Health
VDOT	Virginia Department of Transportation
VEOC	Virginia Emergency Operations Center
VERT	Virginia Emergency Response Team
VEST	Virginia Emergency Support Team

VHF	Very High Frequency
VMS	Variable Message Sign
VSP	Virginia State Police
VOAD	Voluntary Organizations Active in Disaster
VOIP	Voice Over Internet Protocol
WEA	Wireless Emergency Alerts
WVDEP	West Virginia Department of Environmental Protection
WVDHHR	West Virginia Department of Health and Human Resources
WVDHSEM	West Virginia Division of Homeland Security and Emergency Management
WVSP	West Virginia State Police