



**FEMA**

**JUL 07 2015**

Nuclear Regulatory Commission Headquarters  
Office of Nuclear Security and Incident Response  
Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

To Whom It May Concern:

Enclosed is the final After Action Report/Improvement Plan for the Salem/Hope Creek Nuclear Generating Stations (S/HCNGS) Medical Services (MS-1) Drill that was held on April 29, 2015. The New Castle County Paramedics, Volunteer Hose Company of Middletown and Christiana Care Health System/Wilmington Hospital participated in the drill.

There were no Deficiencies, Areas Requiring Corrective Action or Planning Issues identified during the drill.

Based on the review of the offsite radiological emergency response plans and procedures submitted, FEMA Region III has reaffirmed they are adequate and there is reasonable assurance they can be implemented, as demonstrated during the S/HCNGS MS-1 Drill.

If you have any questions, please contact Thomas Scardino at (215) 931-5546.

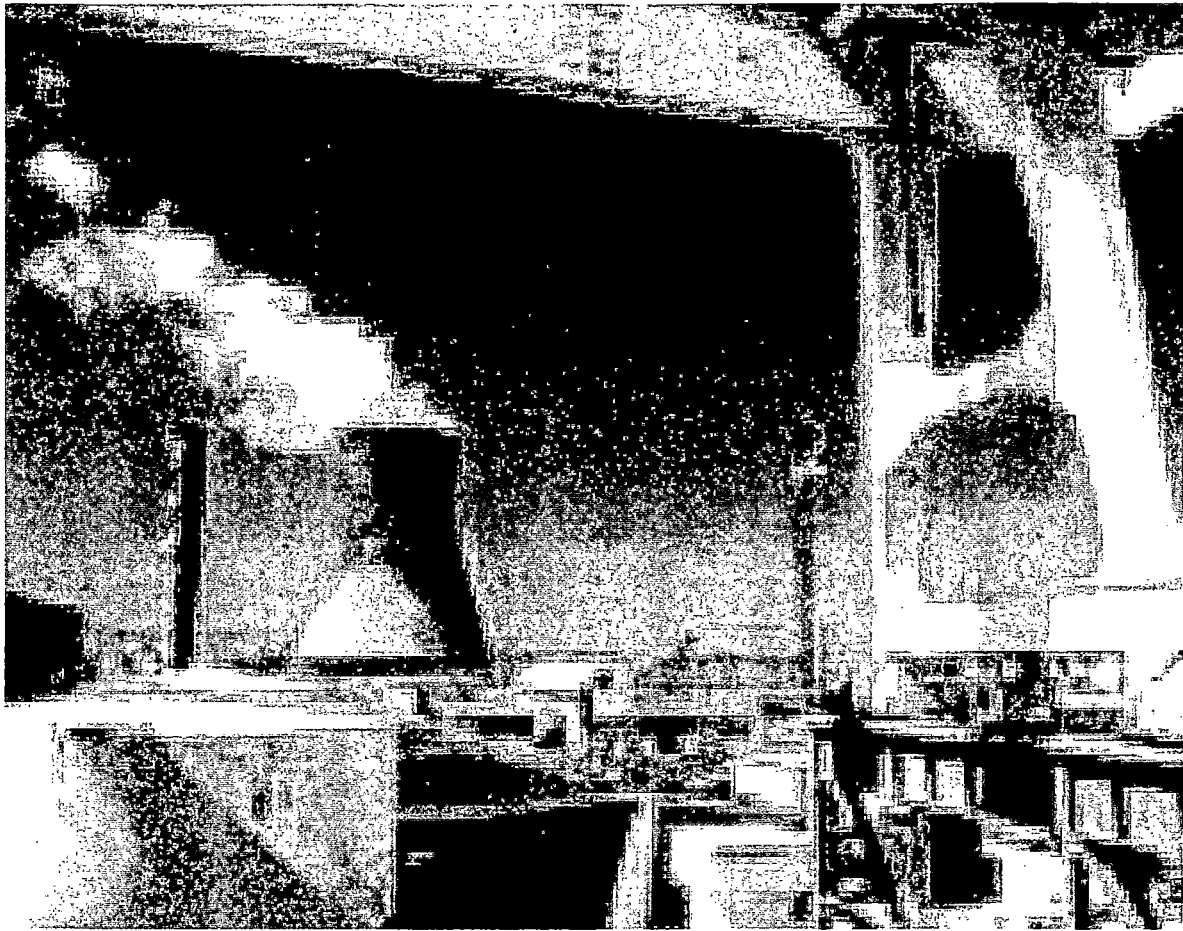
Sincerely,

A handwritten signature in black ink, appearing to read "MAT", is written over the typed name.

MaryAnn Tierney  
Regional Administrator

Enclosure

*IX49*



Salem/Hope Creek Nuclear Generating Stations

# After Action Report/ Improvement Plan

Drill Date - April 29, 2015

Radiological Emergency Preparedness (REP) Program



**FEMA**

*Published May 13, 2015*

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# Salem/Hope Creek Nuclear Generating Stations After Action Report/Improvement Plan

*Published May 13, 2015*

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**Unclassified**  
Radiological Emergency Preparedness Program (REP)

After Action Report/Improvement Plan

Salem/Hope Creek Nuclear Generating Stations

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## EXECUTIVE SUMMARY

On April 29, 2015, the Federal Emergency Management Agency (FEMA), Region III, conducted a Medical Services (MS-1) Drill in relation to the Salem/Hope Creek Generating Stations (S/HCNGS). 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 (RERPs) and procedures.

The most recent evaluated Medical Services Drill at this site in Delaware was conducted on September 12, 2013.

FEMA wishes to acknowledge the efforts of many individuals in the State of Delaware. 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 the exercise.

Protecting the public health and safety is the full-time job of some of the exercise participants and an additional assigned responsibility for others. Still 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.

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## SECTION 1: EXERCISE OVERVIEW

### 1.1 Exercise Details

**Exercise Name**

Salem/Hope Creek Nuclear Generating Stations

**Type of Exercise**

Drill

**Exercise Date**

April 29, 2015

**Program**

Department of Homeland Security/FEMA Radiological Emergency Preparedness Program

**Scenario Type**

Radiological Emergency

### 1.2 Exercise Planning Team Leadership

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## 1.3 Participating Organizations

Agencies and organizations of the following jurisdictions participated in the Salem/Hope Creek Nuclear Generating Stations drill:

State Jurisdictions

Delaware Emergency Management Agency

Risk Jurisdictions

New Castle County Paramedics

Volunteer Hose Fire Company

Christiana Care Health System, Wilmington Hospital

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## SECTION 2: EXERCISE DESIGN SUMMARY

### 2.1 Exercise Purpose and Design

On April 29, 2015, a Medical Services Drill was facilitated in relation to the Salem/Hope Creek Nuclear Generating Station (S/HCNCS) 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 Delaware was conducted on September 12, 2013.

The purpose of this report is to present the drill results and findings on the performance of the offsite response organizations (OROs) during a simulated radiological emergency involving a radiologically contaminated, injured individual. Please note that throughout this report the terms Drill and Exercise may be used synonymously.

The findings presented in this report are based on the evaluations of the Federal evaluator team, with final determinations made by the Regional Assistance Committee Chairperson (RAC) from FEMA Region III and approved by DHS/FEMA/REPP Headquarters. There were no Deficiencies, Areas Requiring Corrective Action, or Planning Issues identified as a result of the exercise/drill.

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

The criteria utilized in the FEMA evaluation process are contained in the following:

- 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;
- FEMA Radiological Emergency Preparedness (REP) Program Manual, (January 2015).

Section 1 of this report, entitled "Exercise Overview," contains basic details of the exercise/drill,

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the exercise planning team, and participating agencies.

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

Section 3 of this report, entitled "Analysis of Capabilities," describes the overall Evaluation and Results and the Summary Results of Evaluation. It identifies the specific participants, the criteria that were evaluated, and indicates if the criteria were or were not met.

Section 4 of this report, entitled "Conclusion" provides the results from the exercise.

Appendix A identifies the Drill Evaluators and Team Leaders

Appendix B catalogs the Acronyms and Abbreviations used in this report

Appendix C is the Exercise Plan and contains the Extent-of-Play and Scenario

Appendix D is the Improvement Plan. However, because there were no "Deficiencies," "Areas Requiring Corrective Action," or "Planning Issues" assessed in this exercise/drill, the Improvement Plan is not applicable.

## **2.2 Exercise Objectives, Capabilities and Activities**

The objective of the Salem/Hope Creek Nuclear Generating Station/Wilmington Hospital 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.

The demonstration included the ability to:

A. Respond to a radiation medical emergency following the procedures of Delaware Emergency Management Agency, New Castle County Paramedics, Volunteer Hose Fire Company and

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Christiana Care Health System/Wilmington Hospital.

B. Implement timely and accurate communications between the hospital and off-site response agencies. (Telephones will be used in lieu of radios whenever possible to limit the potential misinterpretation of the drill as an actual event).

C. Establish correct priorities and appropriate techniques in Emergency Medical Services (EMS), transportation of patients and pre-hospital and hospital emergency care of radioactively contaminated patients

D. Initiate inter-agency cooperation between New Castle County Paramedics, Volunteer Hose Fire Company and Christiana Care Health System/Wilmington Hospital.

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 notification of escalating emergency classification levels at Salem/Hope Creek Generating Stations (S/HCNCS) from Site Area Emergency to General Emergency. During the incident, an emergency worker trips over a fire hose at a vehicle decontamination center. The patient was injured in the fall that resulted in a bilateral anterior knees. While carrying a water sample, he trips and falls, causing abrasions and possible fractures to the bilateral anterior knees with significant bleeding. He was contaminated from the water sample. His team member calls for assistance, describes what happened, requests an ambulance. New Castle County Paramedics and Volunteer Hose Fire Company was dispatched to the scene to provide medical support and transport to the nearest MS-1 Hospital.

Upon arrival at Wilmington Hospital, the Radiation Emergency Medical Team met the Emergency Medical Services (EMS) team at the exterior entrance to the Radiation Emergency Area (REA) to receive and treat the patient. Detectable radioactive contamination was found on bilateral anterior knees.

## SECTION 3: ANALYSIS OF CAPABILITIES

### 3.1 Drill Evaluation and Results

The matrix presented in Table 3.1, on the following pages, presents the status of the exercise evaluation area criteria from the REP Program Manual that was scheduled for demonstration during this drill by all participating jurisdictions and functional entities. Drill evaluation area criteria are listed by number and the demonstration status of the criteria is indicated by the use of the following letters:

(D) Deficiency: an observed or identified inadequacy of organizational performance in an exercise/drill 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.

(A) Area Requiring Corrective Action (ARCA): an observed or identified inadequacy of organizational performance in an exercise/drill that is not considered, by itself, to adversely impact public health and safety.

(P) Plan Issues: an observed or identified inadequacy in the ORO's emergency plan or implementing procedures, rather than in the ORO's performance. Plan Issues are not exercise issues and are required to be corrected through the revision of the appropriate plans or procedures during the next annual plan review and update, submitted for FEMA review, and reported in the State Annual Letter of Certification.

(M) Met: state of a REP exercise Evaluation Area Criterion indicating that participating ORO demonstrated all demonstration criteria for the Evaluation Area Criterion to the level required in the Extent-of-Play Agreement with no Deficiencies or ARCAs assessed in the current exercise and no unresolved prior ARCAs.

(N) Not Demonstrated: term applied to the states of a REP exercise 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.

## 3.2 Summary Results of Drill Evaluation

Table 3.1 - Summary of Drill Evaluation

DATE: 2015-04-29 SITE: Salem/Hope Creek Nuclear Generating Stations, NJ M: Met, A: ARCA, D: Deficiency, P: Plan Issue, N: Not Demonstrated			
		CHCS WH	NCCVHCM
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 Decisions	2a1		
Accident Assessment and PARs for the Emergency Event	2b1		
PAD decision-making process and coordination for the General Public	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



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### **3.3 Criteria Evaluation Summaries**

#### **3.3.1 Risk Jurisdictions**

##### **3.3.1.1 Christiana Care Health System, Wilmington Hospital**

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 New Castle County, The Volunteer Hose Company of Middletown**

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 2015 Salem/Hope Creek Generating Stations (S/HCNGS)/Wilmington Hospital, Medical Services (MS-1) Drill.

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## APPENDIX A: DRILL EVALUATORS AND TEAM LEADERS

DATE: 2015-04-29, SITE: Salem/Hope Creek Nuclear Generating Stations, NJ

LOCATION	EVALUATOR	AGENCY
Christiana Care Health System, Wilmington Hospital	John Price	FEMA RIII
New Castle County, The Volunteer Hose Company of Middletown	*Tina Lai-Thomas	FEMA RIII
* Team Leader		

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## **APPENDIX B: EXERCISE PLAN**

The enclosed Exercise Plan was created as an overall tool for facilitation and implementation of the Salem/Hope Creek Nuclear Generating Stations 2015 Medical Services Drill and to integrate the concepts and policies of the Homeland Security Exercise Evaluation Program (HSEEP) with the Radiological Emergency Preparedness Program Exercise Methodology.

The Exercise Plan was originally drafted and published by the Delaware Emergency Management Agency (DEMA) as an independent document and is annexed here. The Salem/Hope Creek Nuclear Generating Stations' Medical Services Drill Extent-of-Play 2015 was negotiated and agreed upon by FEMA Region III and DEMA, and the offices of emergency management of the Risk and Support Jurisdictions. It is included as an Appendix of the Exercise Plan.



# Exercise Plan

NATIONAL EXERCISE PROGRAM

SALEM – HOPE CREEK GENERATING STATIONS

U.S. DEPARTMENT OF HOMELAND SECURITY



FEMA

For Official Use Only



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**Exercise Plan**

**Medical Services Drill**

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**Exercise Plan**

**Medical Services Drill**

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## PREFACE

The 2015 Salem-Hope Creek Generating Stations Evaluated Medical Services Drill (MS-1) is sponsored by Delaware Emergency Management Agency (DEMA) and the Federal Emergency Management Agency (FEMA). This Exercise Plan (ExPlan) was produced with input, advice, and assistance from the Exercise Planning Team (EPT), which followed the guidance set forth in the FEMA Homeland Security Exercise and Evaluation Program (HSEEP).

The ExPlan gives officials, observers, media personnel, and players from participating organizations the information necessary to observe or participate in a nuclear power plant accident response exercise focusing on participants' emergency response plans, policies, and procedures as they pertain to this type of event. The information in this document is current as of the date of publication and is subject to change as dictated by the EPT.

The 2015 Salem-Hope Creek Generating Stations MS-1 Drill is an *unclassified exercise*. The control of information is based more on public sensitivity regarding the nature of the exercise than on the actual exercise content. Some exercise material is intended for the exclusive use of exercise planners, controllers, and evaluators, but players may view other materials deemed necessary to their performance. The ExPlan may be viewed by all exercise participants, *but the Controller and Evaluator (C/E) Handbook is a restricted document intended for controllers and evaluators only.*

All exercise participants should use appropriate guidelines to ensure the proper control of information within their areas of expertise and to protect this material in accordance with current jurisdictional directives. Public release of exercise materials to third parties is at the discretion of the Department of Homeland Security and the EPT.

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**Exercise Plan**

**Medical Services Drill**

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## HANDLING INSTRUCTIONS

1. The title of this document is *2015 Salem-Hope Creek Generating Stations MS-1 Exercise Plan (ExPlan)*.
2. The information gathered in this ExPlan is *For Official Use Only (FOUO)* and should be handled as sensitive information not to be disclosed. This document should be safeguarded, handled, transmitted, and stored in accordance with appropriate security directives.
3. At a minimum, the attached materials will be disseminated only on a need-to-know basis and when unattended, will be stored in a locked container or area offering sufficient protection against theft, compromise, inadvertent access, and unauthorized disclosure.
4. For more information, please consult the following points of contact (POCs):

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**Exercise Plan**

**Medical Services Drill**

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**Exercise Plan**

**Medical Services Drill**

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**Exercise Plan**

**Medical Services Drill**

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## **CHAPTER 1: GENERAL INFORMATION**

### **Introduction**

The 2015 Salem-Hope Creek Generating Stations Medical Services Drill is a Functional Exercise (FE) designed to establish a learning environment for players to exercise emergency response plans, policies, and procedures as they pertain to Nuclear Power Plant accidents. A FE is a complex event that requires detailed planning. To conduct an effective exercise, subject matter experts (SMEs) and local representatives from numerous agencies have taken part in the planning process and will take part in exercise conduct and evaluation.

This ExPlan was produced at the direction of the Federal Emergency Management Agency with the input, advice, and assistance of the State of Delaware. The 2015 Salem-Hope Creek Generating Stations Medical Services Drill is evidence of the growing partnership between State and local jurisdictions for response to the threats our nation and communities face.

### **Confidentiality**

The 2015 Salem-Hope Creek Generating Stations Medical Services Drill is an *unclassified exercise*. The control of information is based more on public sensitivity regarding the nature of the exercise than on the actual exercise content. Some exercise material is intended for the exclusive use of exercise planners, controllers and evaluators, but players may view other materials deemed necessary to their performance. This ExPlan may be viewed by all exercise participants, *but the Controller and Evaluator (C/E) Handbook is a restricted document intended for controllers and evaluators only.*

All exercise participants should use appropriate guidelines to ensure the proper control of information within their areas of expertise and protect this material in accordance with current Federal, State and Local directives.

Public release of exercise materials to third parties is at the discretion of FEMA and the Exercise Planning Team.

### **Purpose**

The purpose of this exercise is to evaluate player actions against current response plans and capabilities for a nuclear power plant-related incident, and to comply with the requirements of 44 CFR 350 and the guidelines of NUREG 0654/FEMA-REP-1. Exercise planners utilized the elements described in the 67 FR 20580 (April 25, 2002) and Radiological Emergency Preparedness (REP) Program Manual (January 2015) to develop this exercise.

The objective of FEMA, DEMA, and local jurisdictions is to demonstrate reasonable assurance that the public can be protected during a nuclear power plant emergency.

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**Exercise Plan****Medical Services Drill**

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## Target Capabilities

The establishment of the National Preparedness Priorities have steered the focus of homeland security toward a capabilities-based planning approach. Capabilities-based planning focuses on planning under uncertainty, since the next danger or disaster can never be forecast with complete accuracy. Therefore, capabilities-based planning takes an all-hazards approach to planning and preparation which builds capabilities that can be applied to a wide variety of incidents. States and Urban Areas use capabilities-based planning to identify a baseline assessment of their homeland security efforts by comparing their current capabilities against the Target Capabilities List (TCL) and the critical tasks of the Universal Task List (UTL). This approach identifies gaps in current capabilities and focuses efforts on identifying and developing priority capabilities and tasks for the jurisdiction. These priority capabilities are articulated in the jurisdiction's homeland security strategy and Multi-Year Training and Exercise Plan (TEP), of which this exercise is a component.

The capabilities listed below have been selected by the Exercise Planning Team from the priority capabilities identified in State of Delaware Multi-Year TEP and the FEMA Radiological Emergency Preparedness Program Manual (January 2015), Exercise Evaluation Criteria. These capabilities provide the foundation for development of the exercise objectives and scenario, as the purpose of this exercise is to measure and validate performance of these capabilities and their associated critical tasks.

- Planning
- Communications
- Community Preparedness and Participation
- WMD/HazMat Response and Decontamination
- Emergency Triage and Pre-Hospital Treatment
- Medical Supplies Management and Distribution

## Exercise Objectives

The Emergency Preparedness Evaluation Areas – the elements and sub elements – for this drill are those that are required to be demonstrated in every MS-1 Drill, per 67 FR 20580 (April 25, 2002) and the Radiological Exercise Preparedness (REP) Program Manual (January 2015). Appendix B, "Extent of Play," shows the emergency preparedness elements that are required to be demonstrated in the 2015 Salem-Hope Creek Generating Stations Medical Services Drill, along with the level of demonstration that will be displayed in the exercise (i.e, fully demonstrated, limited demonstration, simulated, out of sequence interviews, not demonstrated).

The objective of this exercise is to demonstrate reasonable assurance that the health and safety of the public can be protected, through successful demonstration of tasks identified in Appendix B.

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**Exercise Plan**

**Medical Services Drill**

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## **Outstanding Issues**

There are no deficiencies, Areas Requiring Corrective Action (ARCAs), or planning issues as a result of the FEMA-evaluated Christiana Hospital MS-1 Drill conducted September 12, 2013.

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**Exercise Plan**

**Medical Services Drill**

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## **CHAPTER 2: EXERCISE LOGISTICS**

### **Exercise Summary**

#### **General**

The 2015 Salem-Hope Creek Generating Stations Medical Services Drill is designed to establish a learning environment for players to exercise their plans and procedures to provide transport and medical care for a simulated contaminated and injured individual. The 2015 Salem-Hope Creek Generating Stations Medical Services Drill will be conducted on April 29, 2015. Exercise play is scheduled for four (4) hours or until the Lead Controller, after consulting with the FEMA Site Specialist, determines that the exercise objectives have been met at each venue.

#### **Assumptions**

Assumptions constitute the implied factual foundation for the exercise and, hence, are assumed to be present before the start of the exercise. The following general assumptions apply to the 2015 Salem-Hope Creek Generating Stations Medical Services Drill:

- The exercise will be graded against the REP criteria. Elements outside the scope of the REP criteria will not be graded.
- This exercise will be conducted in a no-fault learning environment wherein systems and processes, not individuals, will be evaluated.
- Exercise simulation will be realistic and plausible, containing sufficient detail from which to respond.
- Exercise players will react to the information and situations as they are presented, in the same manner as if this had been a real event.

#### **Constructs and Constraints**

Constructs are exercise devices designed to enhance or improve exercise realism. Alternatively, constraints are exercise limitations that may detract from exercise realism. Constraints may be the inadvertent result of a faulty construct or may pertain to financial and staffing issues. Although there are a number of constructs and constraints (also known as exercise artificialities) for any exercise, the EPT recognizes and accepts the following as necessary:

- Exercise communication and coordination will be limited to the participating exercise venues.
- Communication methods may include Telephone, Mobile Telephone, radio, and other method made available for players to use during the exercise.
- Out-of-Sequence play is allowed.
- Certain simulations are allowed.

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**Exercise Plan**

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### **Exercise Participants**

The following are the categories of participants involved in this exercise; note that the term “participant” refers to all categories listed below, not just those playing in the exercise:

- *Players.* Players are agency personnel who have an active role in responding to the simulated emergency and perform their regular roles and responsibilities during the exercise. Players initiate actions that will respond to and mitigate the simulated emergency.
- *Controllers.* Controllers set up and operate the exercise site; plan and manage exercise play; act in the roles of response individuals and agencies not playing in the exercise. Controllers direct the pace of exercise play and routinely include members from the exercise planning team. They provide key data to players and may prompt or initiate certain player actions to ensure exercise continuity.
- *Simulators.* Simulators are control staff personnel who role-play as nonparticipating organizations or individuals. They most often operate out of the SimCell, but may occasionally have face-to-face contact with players. Simulators function semi-independently under the supervision of SimCell controllers, enacting roles (e.g., as media reporters or next of kin) in accordance with instructions provided in the Master Scenario Events List (MSEL). All simulators are ultimately accountable to the Exercise Director and/or the Senior Controller.
- *Evaluators.* Evaluators are chosen to evaluate and provide feedback on a designated functional area of the exercise. They are chosen based on their expertise in the functional area(s) they have been assigned to review during the exercise and their familiarity with local emergency response procedures. Evaluators assess and document participants’ performance against established emergency plans and exercise evaluation criteria, in accordance with HSEEP standards and within the bounds of REP Program guidance and regulations. They are typically chosen from amongst planning committee members or the agencies/organizations that are participating in the exercise. FEMA evaluators will not serve as controllers.
- *Actors.* Actors are exercise participants who act or simulate specific roles during exercise play. They are typically volunteers who have been recruited to play the role of victims or other bystanders.

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- *Observers.* Observers visit or view selected segments of the exercise. Observers do not play in the exercise, and do not perform any control or evaluation functions. Observers will view the exercise from a designated observation area and will be asked to remain within the observation area during the exercise. DEMA observers may be present at selected locations as assigned by the Lead Controller. VIPs or other visitors will be handled by each agency or location according to those agencies' policies and procedures.
- *Media Personnel.* Some media personnel may be present as observers pending approval by the Delaware Emergency Management Agency (DEMA).
- *Support Staff.* Exercise support staff includes individuals who are assigned administrative and logistical support tasks during the exercise (i.e. registration, catering, etc.)

## Exercise Tools

### Controller and Evaluator Handbook

The 2015 Salem-Hope Creek Generating Stations Medical Services Drill C/E Handbook is designed to help exercise controllers and evaluators conduct and evaluate an effective exercise. This Handbook also enables controllers and evaluators to understand their roles and responsibilities in exercise execution and evaluation.

### Master Scenario Events List

The MSEL outlines benchmarks, as well as injects that drive exercise play. It also details realistic input to the exercise players as well as information expected to emanate from simulated organizations (i.e., those nonparticipating organizations, agencies, and individuals who would usually respond to the situation). An inject will include several items of information, such as inject time, intended recipient, responsible controller, inject type, a short description of the event, and the expected player action.

For the 2015 Salem-Hope Creek Generating Stations Medical Services Drill the MSEL will not be used.

## Exercise Implementation

### Exercise Play

Exercise play will begin at approximately 0800 with a situation update going to each participating venue. Play will proceed according to the events outlined in the scenario, in accordance with established plans and procedures. The exercise will conclude upon the completion of operations and attainment of the exercise objectives, as determined by the Lead Controller after consultation with Lead FEMA Evaluator.

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### **Exercise Rules**

The following are the general rules that govern exercise play:

- Real-world emergency actions take priority over exercise actions.
- Exercise participants will comply with real-world response procedures, unless otherwise directed by control staff.
- All communications (written, radio, telephone, etc.) made during the exercise will begin and end with the phrase, *"This is an Exercise."*

Exercise participants placing telephone calls or initiating radio communication must identify the organization, agency, office, and/or individual with whom they wish to speak.

### **Safety Requirements**

#### **General**

Exercise participant safety takes priority over exercise events. Although the organizations involved in the 2015 Salem-Hope Creek Generating Stations Medical Services Drill come from various response agencies, they share the basic responsibility for ensuring a safe environment for all personnel involved in the exercise. In addition, aspects of an emergency response are dangerous. Professional health and safety ethics should guide all participants to operate in their assigned roles in the safest manner possible. The following general requirements apply to the exercise:

- An exercise Safety Controller will be identified and be responsible for participant safety.
- All exercise controllers, evaluators, and staff will serve as safety observers while the exercise activities are underway. Any safety concerns must be immediately reported to the Safety Controller.
- Participants will be responsible for their own and each other's safety during the exercise. It is the responsibility of all persons associated with the exercise to stop play if, in their opinion, a real safety problem exists. Once the problem is corrected, exercise play can be restarted.
- All organizations will comply with their respective environmental, health, and safety plans and procedures, as well as the appropriate Federal, State, and local environmental health and safety regulations.

#### **Exercise Setup**

Exercise setup involves the pre-staging and dispersal of exercise materials; including registration materials, documentation, signage, and other equipment as appropriate.



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## **Accident Reporting and Real Emergencies**

- Anyone observing a participant who is seriously ill or injured will first advise the nearest controller to call 911, and state ***"This is not a Drill"*** prior to explaining the injury or illness then if possible, renders aid, provided the aid does not exceed his or her training.
- The controller who is made aware of a real emergency will initiate the broadcast ***"This Is Not A Drill"*** on the controller radio network or telephone, providing the following information to the Lead Controller and Exercise Director:
  - Venue/function
  - Location within the venue/function
  - Condition
  - Requirements
- If the nature of the emergency requires a suspension of the exercise at the venue/function, all exercise activities at that facility will immediately cease. Exercise play may resume at that venue/function once the "Real-World Emergency" situation has been addressed.
- Exercise play at other venue/functions should not cease if one venue/function has declared a "Real-World Emergency" unless they are reliant on the affected venue.
- If a real emergency occurs that affects the entire exercise, the exercise may be suspended or terminated at the discretion of the Exercise Director and Lead Controller.

## **Site Access**

### **Security**

The Lead Controller or Exercise Director will control entry to the exercise venues. To prevent confusion and interruption of the exercise, access to the exercise sites will be limited to exercise participants only. Players should advise their venue's controller or evaluator if an unauthorized person is present. Each organization should follow its internal security procedures, augmented as necessary to comply with exercise requirements.

### **Observer Coordination**

Each organization with observers will coordinate with the Lead Controller or Exercise Director for access to the exercise site. Observers will be escorted to an observation area for orientation and conduct of the exercise. All observers will be asked to remain within the designated observation area during the exercise. Exercise Director and/or the Observer Controller will be present to explain the exercise program and answer questions for the observers during the exercise.

### **Parking and Directions**

Parking information and directions to each venue area are available from the Lead Controller.

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**Restroom Facilities**

Restroom facilities will be available at each venue.

**Exercise Identification**

Players, controllers and evaluators will display the agency issued Identification badges while the exercise is in play.

**Communications Plan****Exercise Start, Suspension, and Termination Instructions**

The exercise is scheduled to run for four (4) hours or until the Lead Controller, after consultation with the Lead Evaluator, determines that the exercise objectives have been met. The Lead Controller will announce the exercise suspension or termination.

**All spoken and written communication will start and end with the statement, "THIS IS AN EXERCISE."**

**Player Communication**

Players will use routine, in-place agency communication systems. Additional communication assets may be made available as the exercise progresses. The need to maintain capability for a real-world response may preclude the use of certain communication channels or systems that would usually be available for an actual emergency incident. In no instance will exercise communication interfere with real-world emergency communications. Each venue will coordinate its own internal communication networks and channels.

The primary means of communication among controllers and the venues will be telephone.

**Player Briefing**

Controllers/evaluators may be required to read specific scenario details to the participants to begin exercise play. They may also have technical handouts or other materials to give to players in order to better orient them to the exercise environment.

**External Affairs**

Any participation by actual media shall be coordinated through the FEMA Office of External Affairs.

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## **CHAPTER 3: PLAYER GUIDELINES**

### **Exercise Staff**

#### **Exercise Director**

The Exercise Director has the overall responsibility for planning, coordinating, and overseeing all exercise functions. The Exercise Director for the 2015 Salem-Hope Creek Generating Stations Medical Services Drill is the Lead Controller who will manage the exercise activities and maintain a close dialogue with the controllers regarding the status of play and the achievement of the exercise design objectives.

#### **Trusted Agents**

Trusted agents are exercise planners and participants who are responsible for developing the Scenario and the Master Scenario Events List (MSEL). These documents are restricted and are not available to other members of the Exercise Planning Team, players, or other participants. The trusted agents for the 2015 Salem-Hope Creek Generating Stations MS-1 Drill include the Exercise Director, Lead Controller, PSEG Nuclear, Delaware Emergency Management Agency and the FEMA Site Specialist.

#### **Lead Controller**

The Lead Controller is responsible for the overall organization of the 2015 Salem-Hope Creek Generating Stations MS-1 Drill. The Lead Controller monitors exercise progress and coordinates decisions regarding deviations or significant changes to the scenario caused by unexpected developments during play. The Lead Controller monitors actions by individual controllers and ensures they implement all designated and modified actions at the appropriate time. The Lead Controller debriefs the controllers after the exercise and oversees the setup and takedown of the exercise.

#### **Controllers**

At least one controller will be onsite with every facility participating in the drill. The Lead Facility Controller at each location will coordinate any changes that impact the scenario or affect other areas of play through the Lead Controller. The individual controllers issue exercise materials to players as required and monitor the exercise timeline. Controllers also provide injects to the players as described in the scenario.

#### **Lead Evaluator**

The Lead Evaluator is responsible for the overall evaluation of the 2015 Salem-Hope Creek Generating Stations MS-1 Drill. The Lead Evaluator monitors exercise progress and stays in

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contact with the Lead Controller regarding changes to the exercise during play. The Lead Evaluator monitors actions of individual Evaluators and ensures they are tracking progress of the players in accordance with the Overview of Play. The Lead Evaluator debriefs the evaluators after the exercise and oversees the entire evaluation and After Action process. The Lead Evaluator will be the FEMA Region III Site Specialist for the Salem-Hope Creek Generating Stations.

**Evaluators**

Evaluators work under the direction of the Lead Evaluator, and as a team with controllers. Evaluators are SMEs who record events that take place during the exercise and assess/submit documentation for review and inclusion in the After Action Report (AAR). Evaluators should refrain from any direct interaction with the players during exercise play except with the facilitation of a controller for clarification of issues or during scheduled interviews.

**Player Instructions****Before the Exercise**

- Review the appropriate emergency plans, procedures, and exercise support documents.
- Be at the appropriate site at least 30 minutes before the start of the exercise. Wear appropriate uniform/identification badge.
- If you gain knowledge of the scenario before the exercise, notify a controller so that appropriate actions can be taken to ensure a valid evaluation.
- Read your Player Information Handout, which includes information on exercise safety.
- Please sign in.

**During the Exercise**

- Respond to the exercise events and information as if the emergency were real, unless otherwise directed by an exercise controller.
- Controllers will only give you information they are specifically directed to disseminate. You are expected to obtain other necessary information through existing emergency information channels.
- Do not engage in personal conversations with controllers, evaluators, observers, or media personnel while the exercise is in progress. If you are asked an exercise-related question, give a short, concise answer. If you are busy and cannot immediately respond, indicate so, but report back with an answer at the earliest time possible.
- If you do not understand the scope of the exercise or if you are uncertain about an organization's or agency's participation in an exercise, ask a controller.

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- Parts of the scenario may seem implausible. Recognize that the exercise has objectives to satisfy and may require the incorporation of unrealistic aspects. Note that every effort has been made by the trusted agents to balance realism with safety and the creation of an effective learning and evaluation environment.
- All exercise communication will begin and end with the phrase "This is an Exercise." This is a precaution taken so anyone overhearing the conversation will not mistake the exercise play for a real-world emergency.
- When communicating with any venue, identify the organization, agency, office, and/or individual with which you want to speak.
- Verbalize out loud when taking an action. This will ensure that evaluators are made aware of critical actions as they occur.
- Maintain a log of your activities. Many times, this log may include documentation of activities missed by a controller or evaluator.

**Following the Exercise**

- At the end of the exercise at your facility, participate in the Hotwash with the controllers and evaluators.
- Complete the Participant Feedback Form as required. This form allows you to comment candidly on emergency response activities and effectiveness of the exercise. Please provide the completed form to a controller or evaluator.
- Provide all rosters, sign in sheets, logs, messages, notes or materials generated from the exercise to your controller or evaluator for review and inclusion in the After Action Report (AAR).

**Simulation Guidelines**

Because the 2015 Salem-Hope Creek Generating Stations MS-1 Drill is of limited duration and scope, the physical description of what would fully occur at the incident sites and surrounding areas will be relayed to the players by simulators or controllers.

If a real emergency occurs during the exercise, the exercise at your respective venue may be suspended or terminated at the discretion of the controller(s) at each venue. If a real emergency occurs, say "Real-World Emergency" and notify the nearest controller and evaluator.

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## **CHAPTER 4: EVALUATION AND POST-EXERCISE ACTIVITIES**

### **Exercise Documentation**

The goal of the 2015 Salem-Hope Creek Generating Stations MS-1 Drill is to comprehensively exercise and evaluate the offsite response organizations' (OROs') plans and capabilities as they pertain to a potential nuclear power plant incident. After the exercise, data collected by controllers, evaluators and players will be used to identify strengths and areas for improvement in the context of the exercise design objectives.

### **Debriefing**

Immediately following the completion of exercise play, controllers will facilitate a debrief with players from their assigned location. The debrief is an opportunity for players to voice their opinions on the exercise and their own performance. At this time, evaluators can also seek clarification on certain actions and what prompted players to take them. The debrief should not last more than 30 minutes. Evaluators should take notes during the debrief and include these observations in their analysis.

### **After Action Report**

The AAR is the culmination of the exercise. It is a written report outlining the strengths and areas for improvement identified during the exercise. The AAR will include the timeline, executive summary, scenario description, mission outcomes, and capability analysis. The AAR will be drafted by a core group of individuals from the exercise planning team.

### **After Action Conference and Improvement Plan**

The improvement process represents the comprehensive, continuing preparedness effort of which the 2015 Salem-Hope Creek Generating Stations MS-1 Drill is a part. The lessons learned and recommendations from the AAR will be incorporated into the Improvement Plan (IP).

#### **After Action Conference**

The After Action Conference (AAC), scheduled within 60 days of the drill to allow jurisdiction officials to hear the results of the evaluation analysis, validate the findings and recommendations in the draft AAR, and begin development of the IP.

#### **Improvement Plan**

The IP identifies how recommendations will be addressed, including what actions will be taken, who is responsible, and the timeline for completion. It is created by key stakeholders from the 2015 Salem-Hope Creek Generating Stations MS-1 Drill participating agency officials during the AAC scheduled within 60 days of the drill.

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## **APPENDIX A: EXERCISE SCHEDULE**

**Table A.1**

2015 Salem-Hope Creek Generating Stations MS-1 Drill *Schedule*

Time (Tentative)	Personnel	Activity
<b>April 29, 2015</b>		
0800	Exercise Staff Assembly	Exercise Briefing
0830	Hospital Maintenance Staff	REA* Setup
0900	Exercise Participants	Exercise Begins
1200	Exercise Participants	Exercise Ends
1215	Exercise Staff Assembly	Critique / Debrief

\* Radiation Emergency Area

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## **APPENDIX B: EXTENT OF PLAY INFORMATION**

### **SALEM-HOPE CREEK GENERATING STATIONS WILMINGTON HOSPITAL MEDICAL SERVICES DRILL April 29, 2015**

#### **Method of Operation**

1. The generating station and its personnel will not play as active role in the facilitation of this drill. The plant's simulated events, radiation releases, and emergency classifications will be injected by off-site controllers. A pre-approved scenario will be used.
2. The Delaware Emergency Management Agency (DEMA) in Smyrna, DE will not be activated as part of this drill. The Exercise Coordinator will provide pre-drill coordination and observe drill activities.
3. PSEG Nuclear will participate as observers in this drill. There may also be observers representing FEMA, DEMA and/or New Castle County Office of Emergency Management (OEM).
4. The New Castle County Department of Public Safety (911 Center/Fireboard & EMS) will participate in this drill.
5. Controllers will be supplied by DEMA and the New Castle County OEM. Controllers are not players and will provide injects and information to initiate and stimulate drill 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. DEMA 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), Federal Emergency Management Agency (FEMA), Radiological Emergency Preparedness Program (REPP) Evaluators will be present at designated demonstration locations.
8. Drill activities are scheduled to commence on or about 0900 on April 29, 2015 and continue until the participants have completed the drill objectives and demonstrated the Exercise Evaluation Criteria.



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9. Participants and agencies will stand down when the controllers have confirmed with the evaluators that all evaluation criteria 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 and the appropriate negative assessment corrected.
11. During the drill, any activity that is not satisfactorily demonstrated may be redemonstrated 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. DEMA may advise the RAC 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 DEMA, the New Castle County Department of Public Safety (911 Center/Fireboard & EMS), the Middletown Volunteer Fire Company Basic Life Support Ambulance Crew, and Wilmington 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 drill 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.

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**Extent of Play**

**Assessment Area 1—Emergency Operations Management**

***Sub-Element 1.e—Equipment and Supplies to Support Operations***

**Intent**

This sub-element is derived from NUREG-0654/FEMA-REP-1, which requires that Offsite Response Organizations (OROs) have emergency equipment and supplies adequate to support the emergency response.

***Criterion 1.e.1: Equipment, maps, displays, monitoring instruments, dosimetry, potassium iodide (KI), and other supplies are sufficient to support emergency operations. (NUREG-0654/FEMA-REP-1, H.7, 10; I.7, 8, 9; J.10.a, b, e, J.11, 12; K.3.a; K.5.b).***

**Extent of Play**

Assessment of this Demonstration Criterion is accomplished primarily through a baseline evaluation and subsequent periodic inspections.

A particular facility's equipment and supplies must be sufficient and consistent with that facility's assigned role in the ORO's emergency operations plans. Use of maps and other displays is encouraged. For non-facility-based operations, the equipment and supplies must be sufficient and consistent with the assigned operational role. At locations where traffic and access control personnel are deployed, appropriate equipment (e.g., vehicles, barriers, traffic cones, and signs) must be available, or their availability described.

Specific equipment and supplies that must be demonstrated under this criterion include KI inventories, dosimetry, and monitoring equipment, as follows:

**KI:** Responsible OROs must demonstrate the capability to maintain inventories of KI sufficient for use by: (1) emergency workers; (2) institutionalized individuals, as indicated in capacity lists for facilities; and (3) where stipulated by the plans/procedures, members of the general public (including transients) within the plume pathway EPZ. In addition, OROs must demonstrate provisions to make KI available to specialized response teams (e.g., civil support team, Special Weapons and Tactics Teams, urban search and rescue, bomb squads, HAZMAT, or other ancillary groups) as identified in plans/procedures). The plans/procedures must include the forms to be used for documenting emergency worker ingestion of KI, as well as a mechanism for identifying emergency workers that have declined KI in advance. Consider carefully the placement of emergency workers that have declined KI in advance.

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ORO quantities of dosimetry and KI available and storage location(s) will be confirmed by physical inspection at the storage location(s) or through documentation of current inventory submitted during the exercise, provided in the ALC submission, and/or verified during an SAV. Available supplies of KI must be within the expiration date indicated on KI bottles or blister packs. As an alternative, the ORO may produce a letter from a certified private or State laboratory indicating that the KI supply remains potent, in accordance with U.S. Pharmacopoeia standards.

**Dosimetry:** Sufficient quantities of appropriate direct-reading and permanent record dosimetry and dosimeter chargers must be available for issuance to all emergency workers who will be dispatched to perform an ORO mission. In addition, OROs must demonstrate provisions to make dosimetry available to specialized response teams (e.g., civil support team, Special Weapons and Tactics Teams, urban search and rescue, bomb squads, HAZMAT, or other ancillary groups) as identified in plans/ procedures).

Appropriate direct-reading dosimetry must allow an individual(s) to read the administrative reporting limits and maximum exposure limits contained in the ORO's plans/ procedures.

Direct-reading dosimeters must be zeroed or operationally checked prior to issuance. The dosimeters must be inspected for electrical leakage at least annually and replaced when necessary. Civil Defense Victoreen Model 138s (CD V-138s) (0-200 mR), due to their documented history of electrical leakage problems, must be inspected for electrical leakage at least quarterly and replaced when necessary. This leakage testing will be verified during the exercise, through documentation submitted in the ALC and/or through an SAV.

Operational checks and testing of electronic dosimeters must be in accordance with the manufacturer's instructions and be verified during the exercise, through documentation submitted in the ALC and/or through an SAV.

**Monitoring Instruments:** All instruments must be inspected, inventoried, and operationally checked before each use. Instruments must be calibrated in accordance with the manufacturer's recommendations. Unmodified CDV-700 series instruments and other instruments without a manufacturer's recommendation must be calibrated annually. Modified CDV-700 instruments must be calibrated in accordance with the recommendation of the modification manufacturer. A label indicating such calibration must be on each instrument or calibrated frequency can be verified by other means. In addition, instruments being used to measure activity must have a sticker-affixed to their sides indicating the effective range of the readings. The range of readings documentation specifies the acceptable range of readings that the meter should indicate when it is response-checked using a standard test source.

For FMTs, the instruments must be capable of measuring gamma exposure rates and detecting

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beta radiation. These instruments must be capable of measuring a range of activity and exposure, including radiological protection/ exposure control of team members and detection of activity on air sample collection media, consistent with the intended use of the instrument and the ORO's plans/ procedures. An appropriate radioactive check source must be used to verify proper operational response for each low-range radiation measurement instrument (less than 1R/hr) and for high-range instruments when available. If a source is not available for a high-range instrument, a procedure must exist to operationally test the instrument before entering an area where only a high-range instrument can make useful readings.

In areas where portal monitors are used, the OROs must set up and operationally check the monitor(s). The monitor(s) must conform to the standards set forth in the *Contamination Monitoring Standard for a Portal Monitor Used for Emergency Response*, FEMA-REP-21 (March 1995) or in accordance with the manufacturer's recommendations.

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.

**State Negotiated Extent of Play:**

*Ambulance crews are not trained or equipped to operate or carry radiological monitoring equipment. In accordance with DEMA standard operating procedures, ambulance crews operating outside the 10 mile Emergency Planning Zone (EPZ) 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.*

*Hospital personnel are also considered "Category C" emergency workers and will conform to DEMA SOP protective measures at minimum. Direct Reading Dosimeters may be issued individually; however, an Area Kit will be established in the Radiation Emergency Area (REA). Individual PRDs will be issued by the hospital.*

*Radiological Survey Instruments are calibrated per manufactures recommendations.*

**Risk and Support Jurisdictions Negotiated Extent of Play:**

**NONE**

**Outstanding Issues:**

**NONE**

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**Assessment Area 3—Protective Action Implementation**

***Sub-Element 3.a—Implementation of Emergency Worker Exposure Control***

**Intent**

This Sub-element is derived from NUREG0654/FEMA-REP-1, which requires that OROs have the capability to provide for the following: distribution, use, collection, and processing of direct-reading dosimetry and permanent record dosimetry; reading of direct-reading dosimetry by emergency workers at appropriate frequencies; maintaining a radiation dose record for each emergency worker; establishing a decision chain or authorization procedure for emergency workers to incur radiation exposures in excess of the PAGs, and the capability to provide KI for emergency workers, always applying the “as low as is reasonably achievable” principle as appropriate.

***Criterion 3.a.1: The OROs issue appropriate dosimetry, KI, and procedures, and manage radiological exposure to emergency workers in accordance with the plans/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. OROs maintain appropriate record-keeping of the administration of KI to emergency workers. (NUREG-0654/FEMA-REP-1, J.10.e; K.3.a, b; K.4)***

**Extent of Play**

Assessment of this Demonstration Criterion may be accomplished during a biennial or tabletop exercise. Other means may include drills, seminars or training activities that would fully demonstrate technical proficiency.

OROs must demonstrate the capability to provide emergency workers (including supplemental resources) with the appropriate direct-reading and permanent record dosimetry, dosimeter chargers, KI, and instructions on the use of these items. For evaluation purposes, appropriate direct-reading dosimetry is defined as dosimetry that allows an individual(s) to read the administrative reporting limits that are pre-established at a level low enough to consider subsequent calculation of TEDE and maximum exposure limits, for those emergency workers involved in lifesaving activities, contained in the ORO's plans/procedures.

Each emergency worker must have basic knowledge of radiation exposure limits as specified in the ORO's plans/ procedures. If supplemental resources are used, they must be provided with just-in-time training to ensure basic knowledge of radiation exposure control. Emergency workers must demonstrate procedures to monitor and record dosimeter readings and manage radiological exposure control.

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During a plume phase exercise, emergency workers must demonstrate the procedures to be followed when administrative exposure limits and turn-back values are reached. The emergency worker must report accumulated exposures during the exercise as indicated in the plans/procedures. OROs must demonstrate the actions described in the plans/procedures by determining whether to replace the worker, authorize the worker to incur additional exposures, or take other actions. If exercise play does not require emergency workers to seek authorizations for additional exposure, evaluators must interview at least two workers to determine their knowledge of whom to contact in case authorization is needed, and at what exposure levels. Workers may use any available resources (e.g., written procedures and/or coworkers) in providing responses.

Although it is desirable for all emergency workers to each have a direct-reading dosimeter, there may be situations where team members will be in close proximity to each other during the entire mission. In such cases, adequate control of exposure can be achieved for all team members using one direct-reading dosimeter worn by the team leader. Emergency workers assigned to low-exposure rate fixed facilities (e.g., EOCs and communications center within the EPZ, reception centers, and counting laboratories) may have individual direct-reading dosimeters or they may be monitored using group dosimetry (i.e., direct-reading dosimeters strategically placed in the work area). Each team member must still have his or her own permanent record dosimetry. Individuals authorized by the ORO to reenter an evacuated area during the plume (emergency) phase, must be limited to the lowest radiological exposure commensurate with completing their missions.

ORO may have administrative limits lower than EPA-400-R-92-001 dose limits for emergency workers performing various services (e.g., lifesaving, protection of valuable property, all activities). OROs must ensure that the process used to seek authorization for exceeding dose limits does not negatively impact the capability to respond to an incident where lifesaving and/or protection of valuable property may require an urgent response.

ORO must demonstrate the capability to accomplish distribution of KI to emergency workers consistent with decisions made. OROs must have the capability to develop and maintain lists of emergency workers who have ingested KI, including documentation of the date(s) and time(s) they did so. Ingestion of KI recommended by the designated ORO health official is voluntary. For evaluation purposes, the actual ingestion of KI shall not be performed. OROs must demonstrate the capability to formulate and disseminate instructions on using KI for those advised to take it. Emergency workers must demonstrate basic knowledge of procedures for using KI whether or not the scenario drives the implementation of KI use. This can be accomplished by an interview with the evaluator.

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.

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**Exercise Plan**

**Medical Services Drill**

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**State Negotiated Extent of Play:**

*Radiological 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 Delaware, emergency workers outside the EPZ do not have turn-back values.*

*Standard issue of dosimetry and KI 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*

*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. In order to demonstrate understanding of the use of the dosimetry equipment, KI and associated forms, the location need only remove and distribute/issue a maximum of six (6) units of dosimetry from their inventory. Simulation PRDs with mock serial numbers may be used.*

**Risk and Support Jurisdictions Negotiated Extent of Play:**

**NONE**

**Outstanding Issues:**

**NONE**

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**Exercise Plan**

**Medical Services Drill**

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**Assessment Area 6—Support Operations/Facilities**

***Sub-Element 6.d—Transportation and Treatment of Contaminated Injured Individuals***

**Intent**

This Sub-element is derived from NUREG0654/FEMA-REP-1, which requires that OROs 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. (NUREG0654/FEMA-REP-1, F.2; H.10; K.5.a, b; L.1, 4)***

**Extent of Play**

Assessment of this Demonstration Criterion may be accomplished during a biennial exercise, an actual event, or drills. FEMA has determined that these capabilities have been enhanced and consistently demonstrated as adequate; therefore, offsite medical services drills need only be evaluated biennially. FEMA will, at the request of the involved ORO, continue to evaluate the drills on an annual basis. If more than two medical facilities and transportation providers are designated as primary or backup, they are also evaluated biennially.

Monitoring, decontamination, and contamination control efforts must not delay urgent medical care for the victim.

OROs must demonstrate the capability to transport contaminated injured individuals to medical facilities.

An ambulance must be used for response to the victim. However, to avoid taking an ambulance out of service for an extended time, OROs may use any vehicle (e.g., car, truck, or van) to transport the victim to the medical facility. It is allowable for an ambulance to demonstrate up to the point of departure for the medical facility and then have a non-specialized vehicle transport the "victim(s)" to the medical facility. This option is used in areas where removing an ambulance from service to drive a great distance (over an hour) for a drill would not be in the best interests of the community.

Normal communications between the ambulance/dispatcher and the receiving medical facility must be demonstrated. If a substitute vehicle is used for transport to the medical facility, this



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**Exercise Plan**

**Medical Services Drill**

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communication must occur before releasing the ambulance from the drill. This communication would include reporting radiation monitoring results, if available. In addition, the ambulance crew must demonstrate, by interview, knowledge of where the ambulance and crew would be monitored and decontaminated, if required, or whom to contact for such information.

Monitoring of the victim may be performed before transport or en route, or may be deferred to the medical facility. Contaminated injured individuals transported to medical facilities are monitored as soon as possible to assure that everyone (ambulance and medical facility) is aware of the medical and radiological status of the individual(s). However, if an ambulance defers monitoring to the medical facility, then the ambulance crew presumes that the patient(s) is contaminated and demonstrate appropriate contamination controls until the patient(s) is monitored. Before using monitoring instruments, the monitor(s) must demonstrate the process of checking the instrument(s) for proper operation. All monitoring activities must be completed as they would be in an actual emergency. Appropriate contamination control measures must be demonstrated before and during transport and at the receiving medical facility.

The medical facility must demonstrate the capability to activate and set up a radiological emergency area for treatment. Medical facilities are expected to have at least one trained physician and one trained nurse to perform and supervise treatment of contaminated injured individuals. Equipment and supplies must be available for treatment of contaminated injured individuals.

The medical facility must demonstrate the capability to make decisions on the need for decontamination of the individual, follow appropriate decontamination procedures, and maintain records of all survey measurements and samples taken. All procedures for collection and analysis of samples and decontamination of the individual must be demonstrated or described to the evaluator. Waste water from decontamination operations must be handled according to facility plans/procedures.

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.

**State 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.*

Unclassified

Radiological Emergency Preparedness Program (REP)

After Action Report/Improvement Plan

Salem/Hope Creek Nuclear Generating Stations

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**Exercise Plan**

**Medical Services Drill**

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*The New Castle County Paramedics and the Middletown Volunteer Fire Company Basic Life Support Ambulance Crew will assess and transport a pre-staged simulated contaminated/injured victim.*

**Risk and Support Jurisdictions Negotiated Extent of Play:**      **NONE**

**Outstanding Issues:**      **NONE**

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