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## **I. EXECUTIVE SUMMARY**

On December 07, 2005, a Medical Services (MS) drill was conducted at the Lawrence & Memorial Hospital, New London, Connecticut by the Federal Emergency Management Agency (FEMA), Region I. The purpose of the drill was to assess the capability of the Lawrence & Memorial Hospital, New London, CT and the Waterford Fire Department, Quaker Hill Station, Ambulance Service, Waterford, Connecticut in responding to a radiological emergency at the Millstone Power Station (PS). This drill was held in accordance with FEMA's policies and guidance concerning the exercise of State and local radiological emergency response plans (RERP) and procedures.

FEMA wishes to acknowledge the efforts of the many individuals in the Lawrence & Memorial Hospital Emergency Department and Support Staffs as well as the Waterford Fire Department Ambulance Service, who participated in this drill.

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

This report contains the final evaluation of the MS-1 Drill.

The hospital and the fire department ambulance service demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There were no deficiencies and no Areas Requiring Corrective Action (ARCA) identified as a result of this drill

## **II. INTRODUCTION**

On December 7, 1979, the President directed FEMA to assume the lead responsibility for all offsite nuclear planning and response. FEMA's activities are 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 Nuclear Station accident in March 1979.

FEMA Rule 44 CFR 350 establishes the policies and procedures for FEMA's initial and continued approval of State and local 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:

- Taking the lead in offsite emergency planning and in the review and evaluation of Radiological Emergency Response Plans (RERPs) and procedures developed by State and local governments;
- 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;
- Responding to requests by the U.S. Nuclear Regulatory Commission (NRC) pursuant to the Memorandum of Understanding between the NRC and FEMA dated June 17, 1993 (Federal Register, Vol. 58, No. 176, September 14, 1993); and
- Coordinating the activities of 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 FEMA Region I's Regional Assistance Committee (RAC) which is chaired by FEMA.

Formal submission of the RERPs for the Millstone Power Station (PS) to FEMA Region I

by the State of Connecticut and involved local jurisdictions occurred on September 4, 1981. Formal approval of the RERP was granted by FEMA on October 9, 1984, under 44 CFR 350.

An MS-1 Drill was conducted on December 7, 2005 by FEMA Region I, to assess the capabilities of the Lawrence & Memorial Hospital, New London, Connecticut and the Waterford Fire Department Ambulance Service, Waterford, Connecticut, in implementing their RERP's and procedures to protect the public health and safety during a radiological emergency involving the Millstone PS. The purpose of this drill report is to present the drill results and findings on the performance of the offsite response organizations (ORO) during a simulated radiological emergency.

The findings presented in this report are based on the evaluations of the Federal evaluator team, with final determinations made by the FEMA Region I RAC Chairperson, and approved by the Regional Director.

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

- NUREG-0654/FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980;
- "Radiological Emergency Preparedness Exercise Evaluation Methodology", published in the *Federal Register* on September 12, 2001, and revised April 25, 2002.

Section III of this report, entitled "Drill Evaluation and Results," presents detailed information on the demonstration of applicable exercise objectives at each jurisdiction or functional entity evaluated in a jurisdiction-based, issues-only format. This section also contains: (1) descriptions of all Deficiencies and ARCAs assessed during this drill, recommended corrective actions, and the State and Local Governments' scheduled of corrective actions for each identified drill issue and (2) descriptions of unresolved ARCAs assessed during previous drills and the status of the ORO's efforts to resolve them. There were no Deficiencies or ARCAs identified during the conduct of this drill. There were no unresolved ACAS to correct from previous drills.

### III. DRILL EVALUATION AND RESULTS

#### **Participating Agencies:**

Waterford Fire Department, Quaker Hill Station - Ambulance Service,  
Lawrence and Memorial Hospital Emergency Department

Contained in this section are the results and findings of the evaluation of the Waterford, CT, Fire Department Ambulance Service and the Lawrence and Memorial Hospital, New London, CT that participated in the December 7, 2005, MS-1 Drill to test the medical service capabilities to respond to an incident involving the Millstone NPS.

Each functional entity was evaluated on the basis of its demonstration of criteria delineated in the exercise criterion contained in the "Radiological Emergency Preparedness: Exercise Evaluation Methodology," published in the Federal Register on September 12, 2001, and amended April 25, 2002.

The following is the status of functional entities evaluated.

#### **A. Waterford Department, Quaker Hill Station - Ambulance Service, Waterford, CT**

The ambulance crew adapted quickly to the requirements of working in a radioactively contaminated area and a contaminated patient, with regard to preventing the spread of contamination and becoming contaminated themselves.

**(a) MET: Criterion 6.d.1**

**(b) DEFICIENCIES: NONE**

**(c) AREAS REQUIRING CORRECTIVE ACTIONS: NONE**

**(d) NOT DEMONSTRATED: NONE**

**(e) PRIOR ARCAs RESOLVED: NONE**

**(f) PRIOR ARCAs UNRESOLVED: NONE**

#### **B. Lawrence and Memorial Hospital, New London, CT**

The Lawrence and Memorial Hospital emergency department, radiological emergency area, staff demonstrated their individual professional proficiencies and combined those proficiencies into a well trained, knowledgeable and experienced medical team.

**(a) MET: Criterion: 6.d.1**

**(b) DEFICIENCIES: NONE**

**(c) AREAS REQUIRING CORRECTIVE ACTIONS (ARCAs): NONE**

**(d) NOT DEMONSTRATED: NONE**

**(e) PRIOR ARCAs RESOLVED: NONE**

**(f) PRIOR ARCAs UNRESOLVED: NONE**

## APPENDIX 1.

### DRILL EVALUATORS

The following is a list of the personnel who evaluated the Medical Services Drill (MS-1 Drill) for the Millstone III Nuclear Power Station on December 7, 2005.

| <u>EVALUATION SITE</u>                                             | <u>CRITERION</u> | <u>EVALUATOR</u> | <u>ORGANIZATION</u> |
|--------------------------------------------------------------------|------------------|------------------|---------------------|
| Waterford, Quaker Station<br>Fire Department,<br>Ambulance Service | 6.d.1            | James Gibbons    | FEMA Region I       |
| Lawrence & Memorial<br>Hospital                                    | 6.d.1            | Robert J. Swartz | FEMA Region I       |

**APPENDIX 2**  
**Extent of Play**  
*Millstone Station / L&M Hospital / Waterford Ambulance*  
*2003 MS-1 Contaminated Patient Exercise*  
*December 7, 2005*

*Submittal September 14, 2005*

|                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>EVALUATION AREA 6: SUPPORT OPERATION/FACILITIES</b><br><b>Sub-element 6.d - Transportation and Treatment of Contaminated Injured Individuals</b> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|

Intent

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to transport contaminated injured individuals to medical facilities with the capability to provide medical services.

**Criterion 6.d.1: The facility/ORO has the appropriate space, adequate resources, and trained personnel to provide transport, monitoring, decontamination, and medical services to contaminated injured individuals. (NUREG-0654, F.2, H.10., K.5.a.b., L.1., 4.)**

**Extent of Play - General**

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

OROs should demonstrate the capability to transport contaminated injured individuals to medical facilities. An ambulance should be used for the response to the victim. However, to avoid taking an ambulance out of service, any vehicle (e.g., car, truck, or van) may be utilized to transport a simulated victim to the medical facility. Normal communications between the ambulance/ dispatcher and the receiving medical facility should be demonstrated. If a substitute vehicle is used for transport to the medical facility, this communication must occur prior to

releasing the ambulance from the drill. This communication would include reporting radiation monitoring results, if available. Additionally, the ambulance crew should 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 simulated victim may be performed before transport, done enroute, or deferred to the medical facility. Before using a monitoring instrument(s), the monitor(s) should demonstrate the process of checking the instrument(s) for proper operation. All monitoring activities should be completed as they would be in an actual emergency. Appropriate contamination control measures should be demonstrated prior to and during transport and at the receiving medical facility.

The medical facility should demonstrate the capability to activate and set up a radiological emergency area for treatment. Equipment and supplies should be available for the treatment of contaminated injured individuals.

## APPENDIX 2 Extent of Play

Millstone Station / L&M Hospital / Waterford Ambulance  
2003 MS-1 Contaminated Patient Exercise  
December 7, 2005

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*Submittal September 14, 2005*

The medical facility should demonstrate the capability to make decisions on the need for decontamination of the individual, to follow appropriate decontamination procedures, and to maintain records of all survey measurements and samples taken. All procedures for the collection and analysis of samples and the decontamination of the individual should be demonstrated or described to the evaluator.

**All activities associated with this criterion must be based on the ORO's plans and procedures and completed, as they would be in an actual emergency, unless noted above or otherwise indicated in the extent of play agreement.**

### **Extent of Play - Specific:**

1. All responding station and offsite emergency response personnel, equipment and procedures will demonstrate response actions within the following limitations:
  2. All non-invasive medical protocol and contamination control (radiological and blood borne pathogen) measures will be demonstrated. Medical procedures will be conducted in accordance with Millstone Power Station, state, local and hospital protocols. Invasive protocols will not be demonstrated. Moulage injured individual role-playing and scenario data will be used to simulate victim physical injuries as well as contamination levels.
  3. The simulated accident will be staged on December 7, 2005, at the Millstone site, outside the Protected Area. This area will be simulated to be a Radiological Control Area (RCA) within Millstone Station. The area will be cordoned off to limit access/interference from non-participants. The area itself is not contaminated.
  4. One individual will role-play a contaminated injured patient. The mechanism of injury will be a fall subsequent to heat stress. Heat stroke will be the priority medical condition. Simulated injuries will be assessed medically and radiologically. The patient will be moderately contaminated. Priorities of care will be determined based on medical condition, simulated injuries and the magnitude of radioactive contamination.
  5. Notification to the Millstone Control Room will be made by drill controller using the Millstone medical emergency number.
  6. Site Fire Protection first responders and Health Physics staff will be pre-staged near the accident scene. Initial emergency medical care will be provided by Millstone first responders (Fire Brigade). Existing Millstone procedures will be used to activate the local Emergency Medical Services response. Millstone HP personnel will provide radiological guidance to EMS personnel.
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**APPENDIX 2**  
**Extent of Play**  
**Millstone Station / L&M Hospital / Waterford Ambulance**  
**2003 MS-1 Contaminated Patient Exercise**  
**December 7, 2005**

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**Submittal: September 14, 2005**

7. The ambulance will be dispatched by Waterford Dispatch using standard dispatching protocols. The ambulance will travel to the plant in a non emergency (cold) mode.
8. Transportation will be performed to the L&M Hospital, which is equipped to treat radiologically contaminated/injured individuals.
9. A Millstone HP Technician will accompany the patient and transport vehicle to the hospital. Additional HP staff/supervision will travel to the hospital to provide support. Upon ambulance exit from the plant property, station play will terminate. HP Technicians that were simulated to be contaminated will be available for assignment to the hospital without monitoring or simulating decontamination.
10. Communications will be demonstrated between the vehicle (ambulance) crew and hospital via medical radio equipment (med patch).
11. Transit to the hospital from the staged accident scene will not be treated as an emergency. All normal traffic laws will be followed. Neither Lifestar, nor Trauma Center will be utilized for the drill.
12. The ambulance and ambulance personnel will be simulated to be contaminated if the controller determines that contamination was spread to the vehicle or personnel. Decontamination of ambulance personnel and emergency vehicles will be demonstrated through a discussion of players.
13. The exercise will be suspended if emergency responders are called upon for an actual emergency or L&M Hospital declares a diversion.
14. The exercise will be terminated based on an agreement between the FEMA lead evaluator and the controller.
15. Immediate correction will be allowed if after initially not being able to show proper actions, equipment, supplies or documentation, the issue can be corrected with further effort/instruction.

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**Areas Requiring Corrective Action (ARCA)**

(None)

### APPENDIX 3

**DOMINION NUCLEAR, CONNECTICUT  
MILLSTONE, L&M HOSPITAL, WATERFORD AMBULANCE  
DECEMBER 7, 2005 EVALUATED EXERCISE  
KEY EVENTS TIMELINE ESTIMATE  
DRILL SCENARIO - TIMELINE**

| <b>Clock<br/>Time<br/>(approx)</b> | <u>Major Event</u>                                                                                      |
|------------------------------------|---------------------------------------------------------------------------------------------------------|
| 0700                               | Moulage, scene set up                                                                                   |
| 0745                               | Initial conditions to players                                                                           |
| 0759                               | Readiness verification                                                                                  |
| 0800                               | Call to 2222                                                                                            |
| 0804                               | Fire Brigade dispatch                                                                                   |
| 0805                               | Fire Brigade responds with HP                                                                           |
| 0806                               | Offsite assistance requested                                                                            |
| 0808                               | Call to Waterford Dispatch                                                                              |
| 0812                               | Ambulance dispatched                                                                                    |
| 0815                               | Control Room calls L&M - Contaminated Patient and Trauma Alert                                          |
| 0817                               | Hospital initiates Radiological Emergency Plan                                                          |
| 0821                               | Ambulance at FAP                                                                                        |
| 0825                               | Ambulance at VAP                                                                                        |
| 0827                               | Ambulance issued dosimetry                                                                              |
| 0827                               | Patient packaged                                                                                        |
| 0831                               | Ambulance at scene                                                                                      |
| 0834                               | Patient transferred to ambulance                                                                        |
| 0845                               | Ambulance departs FAP, initiates patch into L&M ED, Station play terminates, Station critiques commence |
| 0854                               | Ambulance arrives at L&M                                                                                |
| 0856                               | Hospital treating patient                                                                               |
| 0900                               | X-ray request                                                                                           |
| 0910                               | Ambulance cleared, area decontrolled                                                                    |
| 0910                               | Xrays complete                                                                                          |
| 0925                               | Patient care in ED complete, patient decontaminated                                                     |

| <b>Clock Time</b><br><b>(approx)</b> | <u>Major Event</u>        |
|--------------------------------------|---------------------------|
| 0930                                 | Medical staff exiting REA |
| 0945                                 | Critique                  |