U.S. Department of Homeland Security
Region I
99 High Street
Boston, MA 02110

FEMA

January 14, 2005

Mr. Robert Bores
Nuclear Regulatory Commission
Region I
475 Allendale Rd.
King of Prussia, PA 19406

Dear Mr. Bores:

The final exercise report for the December 7, 2005, MS-1 Drill at Franklin Medical Center in Greenfield, Massachusetts is attached. This report addresses the evaluation of the plans and preparedness for the Franklin Medical Center in the event of an emergency at the Vermont Yankee Nuclear Power Plant. The final report was prepared by the Department of Homeland Security, Federal Emergency Management Agency, Region I staff.

There were no Deficiencies or Areas Requiring Corrective Action (ARCA) identified during the exercise. Based on the results of the exercise, the radiological emergency response plans and preparedness for the Franklin Medical Center can be implemented and are adequate to provide reasonable assurance that appropriate measures can be taken offsite to protect the health and safety of the public in the event of a radiological emergency at the site.

If you should have any questions, please contact me at 617-832-4744.

Sincerely,

Deborah S. Bell
Regional Assistance Committee Chair

Vermont Yankee Nuclear Power Station

MS-1 Drill – Franklin Medical Center Greenfield, Massachusetts

Licensee: **Entergy – Vermont Yankee**

Exercise Date: **December 7, 2004**

Report Date: **January 14, 2005**

FEMA

DEPARTMENT OF HOMELAND SECURITY
EMERGENCY PREPAREDNESS AND RESPONSE
FEDERAL EMERGENCY MANAGEMENT AGENCY
REGION I
99 HIGH STREET
BOSTON, MASSACHUSETTS 02110

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I. EXECUTIVE SUMMARY

On December 7, 2004, an MS-1 Drill was conducted with the Town of Greenfield Fire Department, Bay State Ambulance Company and Franklin Medical Center in Greenfield, Massachusetts. The purpose of this drill was to assess the capability of the Town of Greenfield Fire, Baystate Health Systems Ambulance and Franklin Medical Center, to respond to a radiological incident involving the Vermont Yankee Nuclear Power Station. 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 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. This report contains the final evaluation of the Franklin Medical Center MS-1 Drill.

The Town of Greenfield Fire, Baystate Ambulance Company and Franklin Medical Center personnel demonstrated knowledge of their emergency response plans and procedures. 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 off-site 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 Tribal, 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 off-site emergency planning and in the review and evaluation of 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, and
    - U.S. Food and Drug Administration.

Representatives of these agencies serve on the FEMA Region I Regional Assistance Committee (RAC), which is chaired by FEMA.

An MS-1 Evaluated Drill was conducted on December 7, 2004, by DHS-FEMA Region I, Radiological Emergency Preparedness Program (REP) Staff to assess the capabilities of the Town of Greenfield Fire, Baystate Health Systems Ambulance and Franklin Medical Center staff, to demonstrate the adequacy of procedures, facilities, equipment, and personnel for the radiological monitoring and decontamination of injured individuals as a result of a Vermont Yankee Nuclear Power Station incident. 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 amended April 25, 2002.

Section III of this report, entitled "Drill Evaluation and Results," presents information on the demonstration of applicable exercise criteria at Franklin Medical Center and the Town of Greenfield Fire Department and Baystate Health Systems Ambulance Company. This section also contains, if applicable: (1) descriptions of all Deficiencies and Areas Requiring Corrective Action (ARCA) assessed during this exercise, recommended corrective actions, and (2) descriptions of unresolved ARCAs assessed during previous exercises and the status of the OROs' efforts to resolve them.

III. DRILL EVALUATION AND RESULTS

Participating Agencies:
Town of Greenfield Fire Department and Baystate Health Systems Ambulance
Franklin Medical Center

Contained in this section are the results and findings of the evaluation of the Greenfield, Massachusetts, MS-1 Franklin Medical Center Drill conducted on December 7, 2004. The purpose of this evaluated drill was to test the readiness capabilities of the Town of Greenfield Fire, Baystate Health Systems Ambulance and Franklin Medical Center to be able to respond to an incident involving injured, contaminated individuals.

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. Town of Greenfield Fire and Baystate Health Systems Ambulance

Both the Town of Greenfield Fire and Baystate Health Systems Ambulance crew performed all required actions and tended to the (simulated) contaminated individual. Staff worked together to prevent cross-contamination. They ensured care for the health and safety of the contaminated individual was demonstrated.

(a) MET: Criterion 3.a.1, 6.d.1

(b) DEFICIENCES: NONE

(c) AREAS REQUIRING CORRECTIVE ACTION (ARCA): NONE

(d) NOT DEMONSTRATED: NONE

(e) PRIOR ARCAs RESOLVED:NONE

(f) PRIOR ARCAs UNRESOLVED: NONE

B. Franklin Medical Center

The Emergency Room staff and other participating hospital staff displayed enthusiasm and confidence during the demonstration. Their knowledge of the Franklin Medical Center D-4 plan and procedures was evident. The Radiation Safety Officer and her staff ensured participants were attentive during the dosimeter briefing and received appropriate instruments prior to conducting the drill.

(a) MET: 3.a.1, 6.d.1

(b) DEFICIENCES: NONE

(c) AREAS REQUIRING CORRECTIVE ACTION:

(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) for the Vermont Yankee Nuclear Power Station on December 7, 2004.

EVALUATION SITE	CRITERION	EVALUATOR	ORGANIZATION
Greenfield Fire & Baystate Ambulance		Lauren K. DeMarco	FEMA Region I
	3.a.1-- Implementation of Emergency Worker Exposure Control		
	6.d.1. - Transportation And Treatment of Contaminated Injured Individuals		
Franklin Medical Center		Robert Poole	FEMA Region I
	3.a.1-- Implementation of Emergency Worker Exposure Control		
	6.d.1 - Transportation And Treatment of Contaminated Injured Individuals		

APPENDIX 2

EXTENT OF PLAY

The extent of play for the Franklin Medical Center drill is provided below. Two FEMA evaluation criteria (3.a.1 and 6.d.1) will be demonstrated (Use of KI by emergency workers at the Hospital is not necessary).

Participants in the drill were

- Franklin Medical Center, 164 High Street, Greenfield Massachusetts
- Greenfield Fire Department (First Responders and Radiation Monitors at the simulated Reception Center accident scene), 412 Main Street, Greenfield, MA.
- Baystate Health Systems Ambulance.

Procedures being used

- Franklin Medical Center Plan & Procedures
- Town of Greenfield Reception Center, Greenfield Community College Plan
    i. IP-05 Fire Department
    ii. IP-16 EMS personnel
    iii. IP-21 Dosimetry Coordinator

Evaluation Criteria

Criterion 3.a.1: The ORO issue appropriate dosimetry and procedures, and manage radiological exposure to emergency workers in accordance with the plans and 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. (NUREG-0654, K.3.a, b).

Generic Extent of Play

ORO should demonstrate the capability to provide appropriate direct-reading and permanent record dosimetry, dosimeter chargers, and instructions on the use of dosimetry to emergency workers. For evaluation purposes, appropriate direct-reading dosimetry is defined as dosimetry that allows individual(s) to read the administrative reporting limits (that are pre-established at a level low enough to consider subsequent calculation of Total Effective Dose Equivalent) and maximum exposure limits (for those emergency workers involved in life saving activities) contained in the ORO's plans and procedures.

Each emergency worker should have the basic knowledge of radiation exposure limits as specified in the ORO's plan and/or procedures. Procedures to monitor and record dosimeter readings and to manage radiological exposure control should be demonstrated.

During a plume phase exercise, emergency workers should demonstrate the procedures to be followed when administrative exposure limits and turn-back values are reached. The emergency worker should report accumulated exposures during the exercise as indicated in the plans and procedures. ORO should demonstrate the actions described in the plan and/or procedures by determining whether to replace the worker, to authorize the worker to incur additional exposures or to take other actions. If scenario events do not require emergency workers to seek authorizations for additional exposure, evaluators should interview at least two emergency workers, to determine their knowledge of whom to contact in the event authorization is needed and at what exposure levels. Emergency workers may use any available resources (for example, written procedures and/or co-workers) 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 and adequate control of exposure can be affected for all members of the team by one dosimeter worn by the team leader. Emergency workers who are assigned to low exposure rate areas, for example, at reception centers, counting laboratories, emergency operations centers, and communications centers, may have individual direct-reading dosimeters or they may be monitored by dosimeters strategically placed in the work area. It should be noted that, even in these situations, each team member must still have their own permanent record dosimetry.

Individuals without specific radiological response missions, such as farmers for animal care, essential utility service personnel, or other members of the public who must re-enter an evacuated area following or during the plume passage, should be limited to the lowest radiological exposure commensurate with completing their missions.

All activities 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.

Scenario Specific Extent of Play

Greenfield Fire Department & Baystate Health Systems Ambulance
In the interest of time, the issue of dosimeters and radiological briefing part of the demonstration will be done out of sequence prior to the start of the drill. (This is normally done by the Dosimetry Coordinator as part of the Reception Center activation process).
Low range (0 to 200 mR), high range (0 to 20R) DRD and a TLD are issued to each worker. Exposure limits are per Greenfield Town, GCC Reception Center procedures (Procedure IP-21 Dosimetry Coordinator)
The Fire Department (Procedure IP-05) and Ambulance Company (Procedure IP-16) will follow the Commonwealth of Massachusetts requirements for use of dosimeters and exposure control (Procedure IP-21). They will wear a direct reading dosimeter (DRD) and a permanent reading dosimeter (TLD). A dosimeter charger will be available for demonstration.

It will be ensured that the FEMA observes the dosimetry briefing.

Franklin Medical Center

The Franklin Medical Center staff will follow the Hospital Plan for the use of direct reading dosimeters and permanent reading dosimeters (TLD). They will use the low range (0 to 200 mR) DRD and TLD supplied by the Commonwealth of Massachusetts. Exposure limits are as specified in the Hospital Plan.

It will be ensured that the FEMA observes the dosimetry briefing.

The paperwork supporting the calibration of the TLD and leak testing of the direct reading dosimeters supplied by the Commonwealth of Massachusetts are located at the Commonwealth of Massachusetts Offices in Framingham, MA.

The Fire Department, Ambulance Company crew and the hospital will be interviewed about their knowledge of dosimetry and exposure limits by the FEMA evaluators. All participants will demonstrate knowledge of procedures for the use of the dosimeters and of the exposure limits.

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).

Generic Extent of Play

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

Offsite Response Organizations (ORO) 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 for an extended time, any vehicle (for example, car, truck, or van) may be used to transport the 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 before 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 victim may be performed before transport, done en route, 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 before 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.

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.

Scenario Specific Extent of Play

Greenfield Fire Department & Baystate Health Systems Ambulance

The staging area for the scene of the accident will be at the Greenfield Fire Department, 412 Main Street, Greenfield. This will simulate the Greenfield Community College Evacuee Vehicle Monitoring & Decontamination Area.

The ambulance will be staged at the accident staging area. (This simulates the presence of the ambulance at the GCC Reception Center)

Radiological monitoring of the patient at the accident site and, in the ambulance if appropriate will be conducted by personnel from the Greenfield Fire Department.

The Greenfield FD First Responder actions taken at the accident scene, other than the radiation monitoring if appropriate and the packaging of the patient for handoff to the ambulance crew, is not part of the FEMA demonstration.

The ambulance (Baystate Medical Systems) will demonstrate the transportation of an injured and contaminated individual to the Franklin Medical Center (FMC). The ambulance crew will package the patient for transport.

FEMA will observe the packaging of the patient.

The monitoring of the ambulance and the ambulance crew prior to release from the hospital will be demonstrated by the FMC Nuclear Medicine / Radiology Department. Part of the demonstration can be done through discussion. The actual demonstration of personnel survey techniques will be demonstrated by the Radiation Monitor in the ER buffer zone area towards the end of the drill.

Franklin Medical Center

A call will be made to the Hospital by the Drill Controllers at the start of the drill (or about 45 minutes prior to the estimated arrival of the ambulance at the hospital) to simulate the call the Hospital would normally get when the Reception Center is staffed and activated. This will also prevent a delay in the drill owing to the time to mobilize and prepare the ER decontamination area.

Franklin Medical Center Emergency Room and the Environmental Services Department will demonstrate the set up of the treatment area and decontamination area, and the securing of the approach to this area.

The FMC will provide a discussion of the ventilation in the Decontamination / Treatment Room Area if this is requested by FEMA. There will be no sealing of ventilation ducts etc.

The issue of dosimeters, briefing on exposure limits and gowning as appropriate will be demonstrated by the ER personnel.

The Nuclear Medicine / Radiology personnel will demonstrate radiological monitoring and contamination control in the Emergency Room.

In the ER, the ER doctor and ER nurses will demonstrate patient assessment and decontamination of the wounds. The ER personnel will demonstrate the collection of samples, swabs etc from the patient and transfer of samples and X ray film to the clean areas for analyses. Recording of sample and radiation monitoring and decontamination process data will be in accordance with the Hospital Plan.

If X Rays are needed in the ER Treatment Room, the ER Staff and the X Ray technician will either describe or demonstrate how this will be done. If necessary the FEMA evaluator will be shown the portable X Ray equipment.

ER personnel will demonstrate transfer of the patient from the decontamination / treatment area to the clean area. The patient will be decontaminated to the extent possible in the ER decontamination room.

At the end of the drill in the ER, one of the Emergency Room staff members will demonstrate the removal of protective clothing and entry into clean areas. Final monitoring of personnel at the boundary of the decontamination / treatment area will be demonstrated by the Hospital Nuclear Medicine / Radiology Specialist.

A description only, of the cleanup of the decontamination / treatment areas in the ER and the disposal of potentially contaminated equipment and materials will be provided by the Nuclear Medicine Specialist or the Environmental Services Department.

Re-demonstration

A re-demonstration of issues identified by the FEMA evaluator to the Drill Controller is allowed during the conduct of the drill. The conditions are that the issues are related to the adequacy of the demonstration of radiological monitoring of the patient, the adequacy of the demonstration of contamination control procedures used by the ambulance crew and hospital emergency room personnel, and the adequacy of the demonstration of the use of personal dosimeters. The re-demonstration will be agreed to by the FEMA evaluator and will occur after a brief remedial training is provided by the drill controller or another qualified person. Any re-demonstration will be conducted after a session of training of the particular area identified as a problem. FEMA will not conduct training.

APPENDIX 3
DRILL SCENARIO

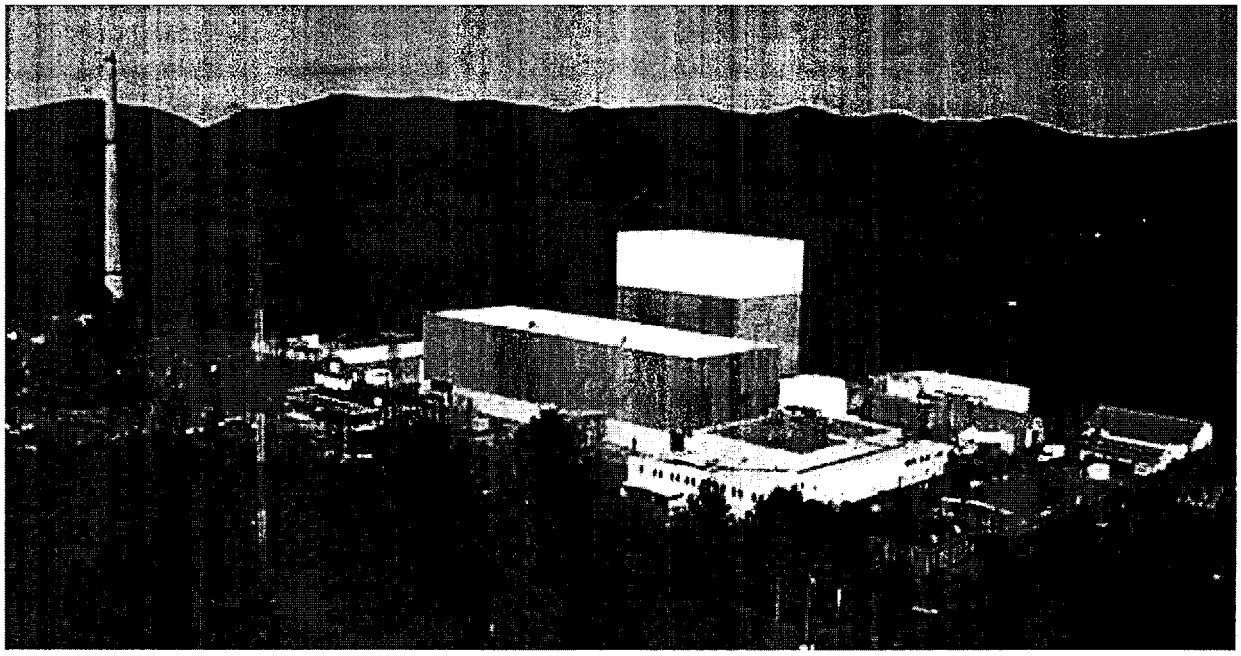
SCENARIO FOR THE MEDICAL SERVICES (MS-1) DRILL

FRANKLIN MEDICAL CENTER, GREENFIELD, MA

THE TOWN OF GREENFIELD, FIRE DEPARTMENT

AND THE

BAYSTATE HEALTH SYSTEMS, AMBULANCE COMPANY



IN SUPPORT OF THE

COMMONWEALTH OF MASSACHUSETTS EMERGENCY PLAN

FOR THE

VERMONT YANKEE NUCLEAR POWER STATION

Type of Drill: Medical Drill MS-1 Date of Drill: December 7, 2004

Location of Drill:

- Town of Greenfield Fire Department, accident staging area at 412 Main Street, Greenfield,
- Franklin Medical Center, 164 High Street, Greenfield

Participants:

- Town of Greenfield Fire Department
- Bay State Health Systems Ambulance
- Franklin Medical Center

1. Description of Drill:

a. Initial Conditions

As a result of an accident (simulated) at the Vermont Yankee Nuclear Power Station there were radiation releases warranting evacuation of the public in the 10 mile downwind direction. The radioactive plume traveled in the south to south westerly direction through the state of Massachusetts. The Site Area Emergency and General Emergency notifications of the states and local communities are simulated. Off site, state and local community Emergency Operations Center activities were simulated. Evacuees are directed (simulated) to the Reception Center (simulated) at the Greenfield Community College in Greenfield for monitoring and decontamination.

b. Narrative Summary

The activation of the Greenfield Community College Reception Center is simulated to occur. Notification of the Hospital is done. The radiological briefing and issue of dosimeters to the Reception Center staff to include the Fire Department Radiation Monitors and the pre positioned BHS ambulance crew is done by the Reception Center Dosimetry Coordinator. The accident staging area is at the Greenfield Fire Department on Main Street.

An emergency worker (Greenfield Fire Department) in the evacuee vehicle monitoring and decontamination center (EM&D) at Greenfield Community College Reception Center is struck by a contaminated vehicle. The worker walks out and then falls into a clean area. The worker's anti contamination suit is torn and he has a 3" laceration on his left upper arm with an apparent compound fracture of the arm. He also struck his forehead causing an abrasion. Both the wound areas are slightly contaminated. Contamination is on the outer clothing and on /in the wounds. The worker is alert, conscious, breathing and in pain.

The Greenfield Fire Department and the BHS ambulance are first responders to/on the scene. They perform the necessary medical assessment, treatment and, radiation monitoring of the patient if appropriate. The patient is packaged for transport by the BHS ambulance to the hospital.

The Franklin Medical Center will receive the patient at the ambulance loading dock. Medical assessment, treatment and decontamination will be performed. Transfer of the patient after decontamination and treatment out to clean areas will be demonstrated. Proper contamination control will be demonstrated.

c. Scenario Time Line

NOTE: All times provided below are approximate.

CLOCK TIME	LAPSED TIME	EVENT	Messages
06:30		Simulated Site Area Emergency at the Vermont Yankee plant	
07:00		Simulated General Emergency at the Vermont Yankee plant	
07:30		Out of sequence Radiological Briefing & dosimeter issue to BHS ambulance crew and FD at the Greenfield Fire Station.	Ambulance Controller to ensure FEMA evaluator observes briefing
08:00		Simulate the Reception Center & Evacuee Monitoring & Decon at Greenfield Community College is activated	
08:00		Out of Sequence Call to the FMC ER and tell them to initiate standby preparation of the ER to receive a contaminated and injured patient, dosimeter briefing and issue (simulates the fact that this would normally occur when the EM&D Center is manned)	Message Ambulance M-1
08:15	00:00	Drill Starts. Greenfield FD at the simulated EM&D center call to 911 to send the ambulance(can be simulated if ambulance is at the accident scene)	
08:25	00:10	The ambulance arrives at the Accident Staging scene (can be simulated as it is staged there).	
08:25	00:10	Accident Staging area demonstration commences	Message Ambulance M-2
08:55	00:40	Ambulance leaves the Accident Staging Area, calls FMC with patient data	
09:00	00:45	Ambulance en route to the FMC, provide patient data when halfway to the FMC	Message Ambulance M-3
09:05	00:50	Ambulance arrives at the FMC and transfer of patient to the ER staff commences	Message ER M-1
09:10	00:55	FMC ER demonstration commences.	Message ER M-2

CLOCK TIME	LAPSED TIME	EVENT	Messages
		ER begins patient assessment & treatment	
After 09:15	After 01:00	Monitoring and release of the ambulance, ambulance crew and ambulance bay by the FMC Nuclear Med / Radiology Dept	Message Ambulance M-4
09:50	01:35	ER transfers patient to clean area	
10:00	01:45	ER demonstrates de gowning and monitoring of ER staff prior to entering clean area.	Message ER M-2
10:10	01:55	ER provides discussion on how area will be cleaned up and radioactive waste will be disposed.	Message ER M-2
10:20	02:05	Drill Termination	
10:40	02:25	Drill Critique	