SUMMARY
Spent Nuclear Fuel
Transportation Emergency Preparedness Drill

• Drill involves a rail accident.
• Spent Nuclear Fuel (Class 7 Radioactive) is in Type-B containers. No radiological breach/release occurs.
• The drill simulates the initial occurrence of the accident through the arrival and integration of a radiation response team into the Incident Command System.

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1.0 Introduction

This manual provides the basis for an emergency response drill of a simulated transportation accident during rail transport of spent nuclear fuel (Hazard Class 7 Radioactive).

Responding agencies may include several or more of the following: local municipal and county fire, police, sheriff and Emergency Medical Services (EMS) personnel; state, local, and federal emergency response teams; emergency response contractors; and other emergency response resources that could potentially be provided by the transporter and the originating facility (rail company).

The goals of this drill are to:

- demonstrate the emergency response notification and communication system
- observe actual response times of emergency responders to a simulated accident scene and rail access points
- verify equipment operability (including radiological monitoring equipment) and the accuracy of field emergency response procedures
- ensure all appropriate notifications are made in accordance with local, state, and federal regulations
- identify and assess hazards
- determine and implement protective measures required for both responder personnel safety and public safety
- determine additional response resources required to contain and restore the site and make appropriate notifications to obtain those resources

This manual provides the guidance for conducting the drill in a safe, efficient, coordinated manner and provides a historical record of the drill.

NOTICE

The drill presented consists of postulated data for a simulated railway transportation accident involving containers of spent nuclear fuel.

This drill was developed to observe the ability of emergency response personnel to deal with a hypothetical incident. Its purpose is to provide emergency responders with sufficient data to allow them to respond according to existing emergency plans and procedures.
The incident portrayed in this drill is hypothetical and should not be considered as actual or probable.

2.0 Scope

This drill scenario should be used to demonstrate emergency response resource deployment for the local community to respond to a railway accident involving spent nuclear fuel. It may also be used to demonstrate the initial phase of the emergency response notification and communication system to:

- observe actual (i.e., maximum) response times of emergency responders to a simulated accident scene
- demonstrate response activities, including
  - responder deployment
  - responding agency interaction
  - Incident Command System (ICS) establishment and operations
  - identification and assessment of hazards
  - incident control

3.0 Objectives

The objectives listed below are based on a simulated transportation (railway) accident and should be performed in accordance with the appropriate state, county, and local community procedures and according to the standards and limits outlined in each respective extent of play. The numbering system employed for the objectives is based on the objective numbers from the Federal Emergency Management Agency (FEMA) Hazardous Materials Exercise Evaluation Methodology (HM-EEM); the objectives are not in sequential order. A complete listing of the 16 FEMA HM-EEM objectives (and evaluation criteria checklists) is contained in the Objectives Module Manual.

Objective 1. Initial Notification of Response Agencies and Response Personnel.

*Demonstrate the ability to notify response agencies and to mobilize emergency personnel.*
Extent of Play:

This objective should be demonstrated by each participating response agency as it would in an actual emergency. All appropriate primary or back-up communications systems (radio, cell phone, land line, etc.) should be used during the drill as in an actual emergency.

The drill will be initiated by contacting the local emergency notification network and reporting the simulated accident location. All appropriate federal/state/county/local response agencies and units agreeing to participate should be appropriately notified and should respond. All response units should be timed from receipt of emergency notification to arrival on scene.

Personnel/units should be deployed, real-time, to the accident scene based on accident conditions relayed via the notifications system. Responding units shall not transit in an “emergency mode” (i.e., no lights or sirens) and should not take/perform any action that impacts the general public, such as establishing road blocks or detours at or near the simulated incident scene, unless it is necessary for participant safety.

**Objective 2. Direction and Control**

*Demonstrate the ability to direct, coordinate, and control emergency response activities through operation of an Incident Command System (ICS) and other direction and control structures.*

Extent of Play:

This objective should be demonstrated by the arrival and assumption of the Incident Commander (IC) position by the first responding unit/personnel as it would be in an actual emergency. The position and responsibility of IC should be transferred to the senior response officer, upon arrival, and a status turnover should be conducted. A visible command post, communication system, and organizational structure should be established. (Assumption: Response personnel have been trained to conduct response using ICS).

**Objective 3. Incident Assessment**
Demonstrate the ability to identify the hazardous materials involved in an incident/accident and to assess the hazards associated with the material involved during both the emergency and post-emergency phases.

Extent of Play:

This objective should be demonstrated by the active assessment of the incident hazards, including a preliminary observational survey of possible injuries, physical hazards at the accident site, materials released, extent of release, release receptors, and the hazards associated with the materials. The initial assessment information should be obtained from placards, shipping documents, labeling, and the North American Emergency Response Guidebook. Based on the preliminary observational assessment, a determination of further resources to physically assess the incident site should then be made. If resources are available, further physical assessment should occur. If local resources are not available for further assessment, requests for assistance should be made as appropriate (State Response Team or other higher level technical responders).

Objective 4. Resource Management

Demonstrate the ability to mobilize and manage resources required for emergency.

Extent of Play:

This objective should be demonstrated by determining the resources required for response as result of the incident assessment. Once the resources required are determined, proper notification and mobilization should occur. Additional resources should be integrated into the response effort by the Incident Commander.

Objective 5. Communications

Demonstrate the ability to establish and maintain communications essential to support response to an incident/accident.

Extent of Play:

This objective should be demonstrated by establishing and maintaining communication between all resources activated for the response. All appropriate primary or back-up communications systems (radio, cell phone, land line, etc.) should be used during the drill
as in an actual emergency. A communications system between response personnel should be established on site by the Incident Commander, as should off-site communications to local, state, federal, shipper, transportation, and contract resources.

Objective 10. Response Personnel Safety

*Demonstrate the ability to protect emergency responder health and safety.*

Extent of Play:

This objective should be demonstrated by the establishment, by the site safety officer, of one or more zones to regulate the movement of personnel throughout the site; determination and usage of appropriate personal protective equipment (PPE); and usage of appropriate monitoring equipment for site hazards.

Objective 11. Traffic and Access Control

*Demonstrate the organizational ability and resources to implement site security and to control evacuation traffic flow and access to evacuated and sheltered areas.*

Extent of Play:

This objective should be demonstrated by the effective implementation of site security measures by appropriate resources and effective traffic control to divert unnecessary traffic away from the area of the incident/accident. Although security units should be sent to the proper locations for traffic control, no actual roadblocks/detours, etc., shall be established that would affect the general public, unless it is necessary for participant safety.

Objective 14. Emergency Medical Services

*Demonstrate the adequacy of personnel, procedures, equipment, and vehicles for transporting contaminated and/or injured individuals, and the adequacy of medical personnel and facilities to support the operation.*
Extent of Play:

This objective should be demonstrated by the effective determination of EMS resources required for the accident site, communication of potential contamination hazards that may require pre-notification to EMS and other medical support personnel, and steps taken by EMS personnel to plan and prepare for potential contamination hazards.

**Objective 15. Containment and Cleanup**

*Demonstrate the ability to implement appropriate measures for containment, recovery, and cleanup of a release of a hazardous material.*

Extent of Play:

Although a spent fuel cask car is simulated to derail, there is no simulated release of radioactive material from the cask. This objective should be demonstrated by notifying and obtaining resources for assistance. Personnel (response and additional resources) should assess the impact of a possible release, demonstrate appropriate planning strategies for control and containment, and then control and contain the area around the boxes, if adequate resources are available.

**Objective 16. Incident Documentation and Investigation**

*Demonstrate the ability to document a hazardous materials incident/accident and response.*

Extent of Play:

This objective should be demonstrated by implementing appropriate log keeping, follow-up documentation, and debriefing procedures.
4.0 Example Schedule

Table 1.0 provides an example schedule for planning and executing the drill. This schedule may be modified for site-specific drill conditions.

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>LOCATION</th>
<th>DATE</th>
<th>DURATION (Approximate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controller Briefing</td>
<td>TBD</td>
<td>Day 1</td>
<td>1.0 Hour</td>
</tr>
<tr>
<td>Field/Scene Walk-down</td>
<td>TBD</td>
<td>Day 2</td>
<td>2.0 Hours</td>
</tr>
<tr>
<td>Drill Player Briefing</td>
<td>TBD</td>
<td>Day 3</td>
<td>0.5 Hours</td>
</tr>
<tr>
<td>Drill Conduct</td>
<td>TBD</td>
<td>Day 3</td>
<td>2.0 Hours</td>
</tr>
<tr>
<td>Controller Debriefing</td>
<td>TBD</td>
<td>Day 3</td>
<td>1.0 Hours</td>
</tr>
<tr>
<td>Player Debriefing</td>
<td>TBD</td>
<td>Day 3</td>
<td>1.0 Hours</td>
</tr>
</tbody>
</table>
5.0 Participation

The following is a list of suggested personnel/groups that may participate in the drill, depending on the desired complexity of the drill. (Many of these agencies may be simulated for the purpose of the drill.)

Local Response Organizations

Local Fire Department
Local Municipal Police Department
Local Emergency Operations Center (EOC)
County Sheriff’s Office
Emergency Medical Service/Ambulance/Hospital
Local HAZMAT Response Team (if available)
Other Mutual Aid Organizations (e.g., nearby Air Force Base or Power Plant response team)

State/Federal Agencies

US Environmental Protection Agency (EPA) Emergency Response Team
State Environmental Regulatory Agency Emergency Response Team
State Emergency Operations Center (EOC)
National Response Team
DOE Facility Simulated as Initiating Shipment
National Response Center (US Coast Guard)
Regional On-Scene Coordinator
Regional Radiation Assistance Program (RAP) Team
State Radiation (RAD) Response Team
Nuclear Regulatory Commission (NRC)

Commercial Organizations

Commercial Licensed Radioactive Materials Transporter
Commercial Contractor Trained for Radioactive Material Cleanup
6.0 Conduct

The following section provides guidelines for drill conduct.

Concept of Operations

Three groups of personnel should participate in the drill: Players, Controllers and Observers.

Players

Players are individuals who have assigned roles during an emergency. Players should respond to the scenario as they would during an actual emergency, initiating actions to control and mitigate the simulated emergency to ensure the health and safety of response personnel and the public.

Players are expected to obtain necessary information through established emergency information channels and to use their own judgment in determining response actions when resolving problems.

Controllers

Controllers are responsible for the safe and effective conduct of the drill. They perform an active role in the drill by providing data to Players. Controllers are the only non-Players who provide information or direction to Players. Controllers may prompt or initiate certain Player actions to ensure drill continuity. Controllers are identified by wearing a standard identification device.

Observers

Observers are persons who do not have an active drill role but who watch drill conduct. Observers do not communicate directly with players. They should, however, report any safety concerns to a controller. Observers are identified by wearing standard identification devices different from those worn by controllers.
Controlling Messages

Drill Messages

Drill messages are used to control the flow and progress of the drill. These messages are designed to simulate the physical indications that would normally be available to responders in an actual emergency. Drill messages are issued by Controllers to Players at appropriate times. The issuance of drill messages is coordinated via the scenario timeline; Controllers are briefed prior to the drill in a controller briefing. Concurrence from the Lead Controller during the drill is not normally required.

Contingency Messages

Contingency messages are used to ensure the continuity of the drill in the event that Players do not initiate actions that are critical to the drill timeline. In most instances issuance of contingency messages requires the notification of the Lead Controller PRIOR to issuance.

Drill Controller Debrief/Drill Report

Immediately upon termination of the drill, Drill Controllers should meet to review player actions and identify drill issues. A drill report documenting drill observations should be prepared upon completion of the drill and should be submitted to the appropriate organizations.

Drill Ground Rules

At no time shall Players, Controllers or Observers physically walk across the highway or railroad tracks without the escort of Safety Controllers or Public Safety Officers.

Players shall not have prior knowledge of the scenario.

The drill scenario should not include any actions or situations that degrade the actual condition of systems and equipment, affect the detection and assessment of actual emergencies, or diminish the capability for response to actual emergencies.
No actions or reactions shall be initiated that involve actual operation of equipment (other than radiological monitoring) or affect operating capability.

Emergency response facilities should not be pre-activated and response personnel should not be pre-staged. All players should follow their normal work routines until drill events cause them to initiate emergency response actions.

Except for the actions identified in the list of actions to be simulated, or as otherwise directed by drill Controllers, Players are to respond to drill events and information as if the emergency were real.

Players shall act as if simulated hazardous conditions were real.

All drill participants shall take no action that reduces the safety of themselves or the public.

All drill participants shall adhere to public laws, including traffic regulations, and shall follow any orders given by law enforcement personnel.

Controllers should only provide Players with the information that they are specifically designated to disseminate in their assigned functional area. Players are expected to obtain other necessary information through existing emergency information channels.

In the event that Players do not initiate actions "critical" to the successful completion of the drill scenario, Controllers should issue Contingency Messages, which direct Players to initiate specific actions and/or provide on-the-spot training to assist completion of critical actions.

All drill messages and communications shall be preceded and followed by the phrase, “THIS IS A DRILL.”

**Drill Guidelines**

The responsibility of Drill Controllers is to ensure that drill events occur in the sequence prescribed by the scenario and to monitor drill play. Drill Controllers must be familiar with the emergency plan and procedures that pertain to their assigned area.

**Before Drill Day**
1. Familiarize yourself with the drill objectives and extent of play applicable to your area of control.

2. Ensure that you understand the scenario and timeline.

3. Obtain and review emergency procedures applicable to your area of control.

4. Familiarize yourself with the organization and communication methods.

5. Review drill messages and scenario information that you are responsible to provide to Players. Ensure that you understand how the Players are to receive this information and what their responses should be.

6. Ensure you know how to contact the Lead Controller for questions or problem resolution.

7. Perform a field walkdown of your observation location(s). Ensure you know where and when you must report prior to drill commencement.

Immediately Prior to the Drill

1. Report to your assigned area as scheduled.

2. Familiarize yourself with your assigned work station and equipment.

3. Ensure that you are readily identifiable by all Players.

4. Identify and test a phone or radio that you may use for communications with other Controllers.

5. Identify yourself to any Players who may be in your area of control. Ensure they are familiar with your role.

During the Drill

1. Ensure that safety remains the number one priority for all actions and activities carried out during the drill.

2. Identify all Players that you are controlling during the drill, and inform them of your function.

3. If applicable, brief all Players in your area on drill ground rules and/or initial conditions. Explain that you may help/instruct the Player(s) in proper response actions based on their actions during the drill.

4. Remain at your assigned location until the drill has been terminated by the Lead Controller.
5. Ensure that each Player in your area of control/observation has been logged on an attendance sheet and that the attendance sheet identifies the appropriate facility.

6. If a real emergency occurs that affects the Players in your area of control/observation, terminate your portion of the drill and notify the Lead Controller.

7. Refer any/all general public and/or media inquiries to the "Official Drill Information Contact Point," TBD, as applicable, based on your location.

8. Position yourself to maximize your effectiveness in issuing messages and/or observing the players.

9. Record arrival times and actions of key players.

10. Distribute drill messages, as required, and provide additional input, as necessary, to keep the scenario progressing as designed. Make sure that the Players understand the messages you give them.

11. If you are uncertain what actions are being taken by the Players or why, make sure you ask, so that you understand the extent of play. Phrase questions so as not to prompt the Players of expected actions. Allow the Players reasonable flexibility to perform their functions and demonstrate their skill, knowledge, and initiative.

12. Do not allow external influences to distract the Players.

13. Do not allow simulation when notification/communication equipment is available (unless the action would decrease the level of personnel safety).

14. Note all your observations, as appropriate, on the provided Drill Chronology Logs and Observation Checklists.

15. Do not allow Player actions to continue if they would obviously impair scenario continuity. Notify the Lead Controller if the timeline is off schedule, if the Players depart significantly from the scenario, or if you are in doubt as to what to do.
Upon Drill Termination

1. Complete Drill Chronology Logs.
2. Document drill findings on the appropriate Drill Controller Checklists and Chronology Logs.
3. Participate in the post-drill Drill Controller briefing.

Example Drill Controller Organization

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBD</td>
<td>Lead Controller</td>
</tr>
<tr>
<td>TBD</td>
<td>Lead Incident Scene Controller</td>
</tr>
<tr>
<td>TBD</td>
<td>Media/Public Interface</td>
</tr>
<tr>
<td>TBD</td>
<td>PIO Representative</td>
</tr>
<tr>
<td>TBD</td>
<td>Media/Public Interface</td>
</tr>
<tr>
<td>TBD</td>
<td>PIO Representative</td>
</tr>
<tr>
<td>TBD</td>
<td>Incident Scene-Safety</td>
</tr>
<tr>
<td>TBD</td>
<td>Motorist Role-Player</td>
</tr>
<tr>
<td>TBD</td>
<td>DOE Facility Operations Center</td>
</tr>
<tr>
<td>TBD</td>
<td>Incident Scene- State Law Enforcement</td>
</tr>
<tr>
<td>TBD</td>
<td>State Emergency Preparedness</td>
</tr>
<tr>
<td>TBD</td>
<td>County Sheriff Office Dispatcher</td>
</tr>
<tr>
<td>TBD</td>
<td>Fire Department Dispatcher 1</td>
</tr>
<tr>
<td>TBD</td>
<td>Fire Department Dispatcher 2</td>
</tr>
<tr>
<td>TBD</td>
<td>County EMS Dispatcher</td>
</tr>
<tr>
<td>TBD</td>
<td>Incident Scene Commander</td>
</tr>
<tr>
<td>TBD</td>
<td>Incident Scene-Responding Unit(s)</td>
</tr>
<tr>
<td>TBD</td>
<td>Incident Scene-Responding Unit(s)</td>
</tr>
<tr>
<td>TBD</td>
<td>Incident Scene-Responding Unit(s)</td>
</tr>
<tr>
<td>TBD</td>
<td>Law enforcement officer in caboose</td>
</tr>
</tbody>
</table>
7.0 Narrative Summary/Timeline

The following section provides a narrative summary of the drill scenario and an approximate timeline (Table 2, located at the end of this section) for drill activities. The timeline also provides anticipated points during the drill where dissemination of the drill messages contained in Section 8.0 is appropriate. The scenario and timeline are suggested guidelines for the drill and may be modified to meet site-specific conditions.

Initial Conditions (which are assumed to have occurred prior to drill commencement)

A rail shipment of spent nuclear fuel (Class 7 Radioactive) was in transit to a DOE facility. The shipment consists of eight casks (Type B containers).

Meteorological Conditions Summary

- Wind direction is “as read”
- Temperature is “as read”
- Wind speed is “as read”
- Rain is not in the immediate forecast

Drill Play Begins

A derailment occurs while the train is traveling through the local county. The train derails near (approximately ¼ to ½-mile from) where the railroad crosses State Highway XX. Ten rail cars leave the track and two of them turn over. The derailment causes three casks to fall onto the ground. None of casks are breached. Radiation levels are normal. No contamination is released.

The State Law Enforcement Department (e.g., Highway Patrol, Police Department, or Public Safety) escort in the (simulated) caboose immediately initiates an actual emergency notification to the actual State Law Enforcement Department field escort, State Warning Point, and the appropriate DOE Operations Center. A simulated TRANSCOM message is simultaneously made to the State Environmental Protection Division Warning Point and the appropriate DOE Operations Center. A motorist (role player) in a vehicle in the vicinity of the (simulated) train derailment “observes” the accident and reports it, via
cellular phone, to the local emergency response network (e.g., 911) dispatch center. The report provides no information other than the location of the accident.

Emergency response units should be dispatched to the incident scene, based on the information available, and transmitted via the notification/communications system. Initial emergency response units notified for deployment should include, at a minimum (either real or simulated), local police/sheriff’s department, fire department, Radiation Response Team, and EMS.

The units should not transit in an “emergency mode” (i.e., no lights or sirens) and should not take/perform any action that impacts the general public, such as establish unnecessary roadblocks or detours at or near the simulated accident scene. All arriving units should be timed (to determine "maximum" response time) and accounted for. Any unit arriving with radiological monitoring equipment should demonstrate radiological monitoring/survey operations.

The first emergency response unit to arrive should assume the position of Incident Commander (IC). They should establish initial control of the scene, cordon off the accident area, and set up traffic control or rerouting. Within a reasonable time of the arrival of the first responder unit, the remaining response units (Fire, Police, EMS, etc.) should arrive.

An initial hazards assessment should be made of the scene. However, due to the unknown nature of the hazard and potential of release, personnel should not allowed within direct proximity of the overturned rail cars. (Appropriate monitoring equipment and PPE should be utilized for the physical site assessment). The IC should brief responders on the observed hazards at the scene prior to any response actions occurring. A strategy for site safety and response actions should be developed in accordance with the guidelines set forth in the Emergency Response Guidebook.

Proper site control and evacuation procedures should be implemented. Upon arrival at the scene, EMS should assess the scene and plan/prepare for potential contamination hazards.

A resources assessment should be conducted by the IC/Safety Officer. The resource assessment should reveal monitoring equipment and appropriate PPE is needed for additional site assessment. If monitoring equipment is available, the responders should don appropriate PPE and proceed with area surveys for possible contamination. If
monitoring equipment is not available the IC should contact other responding agencies for assistance, such as the state spill response team or another higher level technical response unit in the area. No further action should be taken at the site until monitoring occurs.

The RAD Response Team (mobilized by the call from the escort) should arrive and report to the IC. The IC should provide a status briefing and make appropriate requests for radiological monitoring to demonstrate an understanding of RAD Response Team capabilities. The IC/responding unit should remain on scene until such time as they are relieved by a deployed RAD Response Team (simulated) senior officer, and operations transition to the recovery mode.

The on-site portion of the drill should be terminated subsequent to transition to recovery mode.

A drill debriefing should be conducted subsequent to termination of the drill to provide feedback to the player organization.
<table>
<thead>
<tr>
<th>Clock Time</th>
<th>Suggested Drill Time</th>
<th>Event/Expected Action</th>
<th>Message No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>-01:00</td>
<td>All controllers are in place. Communications and time check completed between Lead and Controller Staff.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-00:15</td>
<td>Incident scene is set up (Drill Controllers, Players, prop signs, etc.).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00:00</td>
<td>Train derails near railroad crossing with State Highway XX.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00:00</td>
<td>State Law Enforcement Department escort in (simulated) caboose notifies actual State Law Enforcement Department escort, State Warning Point, and nearby DOE facility operations center.</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>00:05</td>
<td>Motorist calls (actual) emergency response network (e.g., 911) and reports accident/scene conditions.</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>00:10</td>
<td>Local/County/State dispatcher(s) notification contingency.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>00:15</td>
<td>Emergency response units begin arriving at the incident scene.</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>00:20</td>
<td>Site security and control established.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00:45</td>
<td>Site assessment for injuries and hazards begins along with the resource evaluation. Incident response strategy is developed.</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>01:00</td>
<td>Radiation survey is performed (if equipment is available).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01:15</td>
<td>Radiation Response Team is prompted to deploy if dispatch/deployment has not occurred before this time.</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>01:30</td>
<td>Radiation Response Team arrives, debriefing occurs, and IC transitions.</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>TBD</td>
<td>Drill Hold and Resume Play Contingency.</td>
<td>8A/B</td>
<td></td>
</tr>
<tr>
<td>02:00</td>
<td>Drill Termination announcements to all agencies.</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>02:15</td>
<td>Drill Controllers and players return incident scene to pre-drill conditions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>02:45</td>
<td>Drill Controller/Player debriefing is held.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8.0 Messages

MESSAGE 1
NOTIFICATION TO STATE WARNING POINT AND DOE FACILITY OPS CENTER

TO: State Law Enforcement Department Escort in (Simulated) Caboose
FROM: Lead Controller
TIME: (00:00)
NOTE: Direct the law enforcement escort to call in this message via cell phone to commence the drill. This message provides notification of the train derailment.

The controller should describe the accident scene to the law enforcement escort role-player prior to issuing this message, and may use the scenario drawing in this package to help give the role-player an accurate image of the accident scene.

THIS IS A DRILL
DO NOT initiate actions affecting safe operations.

MESSAGE:

Issue the following message via phone to the State Warning Point and nearby DOE Facility Operations Center:

This is a drill. This is a drill.

This is XXXXXX. I am an escort on the XXXX train heading from DOE Facility A to DOE Facility B with a cargo of eight spent nuclear fuel casks.

The train has derailed near State Highway XX. Ten rail cars have left the track and two of the rail cars have overturned. Three containers are lying on the ground near the overturned cars. There is no smoke or evidence of fire or an explosion.

Please alert the appropriate response agencies immediately.

This is a drill. This is a drill.

THIS IS A DRILL
DO NOT initiate actions affecting safe operations.
MESSAGE 2
ROLE PLAYER (MOTORIST) INITIAL NOTIFICATION CALL

TO: Emergency Response Network Dispatcher
FROM: Motorist (role-player)
TIME: (00:00)

NOTE: Call in this message via cell phone upon Lead Controller authorization. This message provides a “bystander” eye-witness notification of the train derailment.

THIS IS A DRILL
DO NOT initiate actions affecting safe operations.

MESSAGE:

Call “911” and issue the following message:

This is a drill. This is a drill.

This is ________________. I am on State Highway ___ at the railroad crossing and there has been a train derailment.

Several rail cars have left the track and some have overturned.

You had better get help out here fast.

This is a drill. This is a drill.

THIS IS A DRILL
DO NOT initiate actions affecting safe operations.
MESSAGE 3 (CONTINGENCY)
LOCAL/COUNTY/STATE DISPATCHER(S) NOTIFICATION

TO: Applicable Dispatcher(s)
FROM: Applicable Dispatcher Controller(s)
TIME: (00:10)

NOTE: This contingency message serves to ensure that the appropriate notifications are made by each respective dispatcher if notifications are not “automatically” initiated, per local emergency procedures, without Drill Controller intervention.

Direct initiation of notifications IF dispatcher receives emergency notifications, but does not initiate notifications per procedures.

Inform Lead Drill Controller(s) if notifications are not received at your dispatch locations by T+00:10.

THIS IS A DRILL
DO NOT initiate actions affecting safe operations.

MESSAGE:

This is a drill. This is a drill.

For the purposes of the drill being conducted today, you are requested to make all required emergency notifications for a train accident/derailment at the railroad crossing with State Highway ____ at this time.

This is a drill. This is a drill.

THIS IS A DRILL
DO NOT initiate actions affecting safe operations.
MESSAGE 4
ACCIDENT SCENE DESCRIPTION

TO: Players Within Line of Sight
FROM: Incident Scene Controller
TIME: (00:15)

NOTE: This message serves to provide players with notice to proceed with the drill and description of simulated incident conditions. Within 5 minutes the remaining first responding units should arrive and be briefed.

** Information within this message will only be relayed to responders positioned within line of sight of the specified conditions. Use the scenario drawing as an aid if it does not give away unearned information to players and if it helps describe the props available or the absence of props, as applicable. **

THIS IS A DRILL
DO NOT initiate actions affecting safe operations.

MESSAGE:

Provide only those portions of the following information based on responders line-of-sight/vantage point:

- The train has derailed near (approximately ¼ to ½-mile from) the railroad crossing with State Highway XX.
- No injuries are observed.
- Ten rail cars have left the track and two of the rail cars have turned over.
- Three containers are lying on the ground near the overturned cars, and none appear to be breached.
- There is no smoke or evidence of fire or an explosion.

THIS IS A DRILL
DO NOT initiate actions affecting safe operations.
MESSAGE 5  (CONTINGENCY MESSAGE)
HAZARD ASSESSMENT

TO: Incident Commander
FROM: Lead Controller
TIME: (00:45)

NOTE: This message is to be given if play stalls during the hazard assessment and control phase. This message may be used to prompt the players to proceed with the drill. Issue only those portions of the message that are appropriate (i.e., have not been considered or begun).

THIS IS A DRILL
DO NOT initiate actions affecting safe operations.

MESSAGE:

issue only the applicable portions of the message below:

• For the purpose of this drill, you are directed to take appropriate actions to obtain shipping paper information for the purpose of hazards assessment.

• You are also directed to determine if resources available are adequate for thorough site assessment and site control.

THIS IS A DRILL
DO NOT initiate actions affecting safe operations.
MESSAGE 6 (CONTINGENCY MESSAGE)

SHIPPER INFORMATION

TO: Emergency Network Dispatch or Incident Commander (as applicable)
FROM: Dispatch Controller or Lead Controller (as applicable)
TIME: (00:50)

NOTE: This message serves to ensure that technical information from the shipper is received by the Incident Commander. Issue the applicable portion(s) of this message as described in italics below.

THIS IS A DRILL
DO NOT initiate actions affecting safe operations.

MESSAGE:

If the IC does not call the shipper directly from the Command Post or ask the dispatcher to contact the shipper within a reasonable amount of time OR if the dispatcher has been asked to contact the shipper but has not done so within a reasonable amount of time:

For the purpose of this drill you are directed to contact the shipper using the Emergency Response Number (as listed on the Shipping Documents or as provided by the IC)

If action is taken by the IC or dispatcher to contact the shipper, but the shipper is not playing or being simulated by a role player:

Relay the following message to the IC. “The material is uranium, plutonium and mixed fission products. Isolate the area, stay upwind and away from the containers, and evacuate downwind for 100 meters. The Emergency Response Guide number is 165. A radiation Response team is being deployed and should arrive within a hour.”

If the dispatcher contacts the shipper (actual or role-player) but does not relay the technical information received back to the IC in a reasonable amount of time:

“For the purpose of this drill you are directed to contact the IC and relay the technical information provided to you by the shipper.”

THIS IS A DRILL
DO NOT initiate actions affecting safe operations.
MESSAGE 7 (CONTINGENCY MESSAGE)
RAD RESPONSE TEAM DEPLOYMENT

TO: RAD Response Team
FROM: RAD Response Team Controller
TIME: (01:15)

NOTE: If a RAD Response Team is actually playing but the team was not dispatched OR if the team was notified but never deployed, issue the following message after a reasonable amount of time has passed since deployment should have occurred.

If the RAD Response Team is being simulated, at least one person must be designated as a role-player and sent to the Incident Command Post to interface with the IC.

THIS IS A DRILL
DO NOT initiate actions affecting safe operations.

MESSAGE:

For the purpose of this drill, you are directed to go to the accident site.
MESSAGE 8 (CONTINGENCY MESSAGE)
RAD RESPONSE TEAM BRIEFING WITH INCIDENT COMMANDER

TO: Incident Commander
FROM: Lead Controller
TIME: (01:30)

NOTE: The purpose of this message is to ensure the Radiation Response Team is integrated into the Incident Command System after their arrival. If an actual or simulated (by role-players) Radiation Response Team is participating, this message will be used to prompt the IC to give a situation briefing to the Radiation Response Team if the IC does not initiate this action within approximately 10 minutes of Radiation Response Team arrival. If the Radiation Response Team is being simulated and no role-players are available, the Lead Controller will simulate the team and request a turnover briefing using the second portion of this message.

THIS IS A DRILL
DO NOT initiate actions affecting safe operations.

MESSAGE:

Issue this portion of the message ONLY if the Radiation Response Team (actual or role-players) has been at the Command Post for approximately 10 minutes and the Incident Commander has not shown any initiative to provide the team with a briefing and integrate them into the response activities:

For the purpose of the exercise being conducted today, you are directed to give the members of the Radiation Response Team a briefing and then integrate them into the response activities.

Issue this portion of the message ONLY if the Radiation Response Team is being simulated by the Lead Controller:

For the purpose of the exercise being conducted today, I am role-playing the Radiation Response Team. Please provide me with a briefing at this time.

THIS IS A DRILL
DO NOT initiate actions affecting safe operations.
MESSAGE 9A
HOLD MESSAGE 1

TO: All players
FROM: Lead Controller
TIME: Upon Suspension of Drill Play

NOTE: DO NOT issue this message without authorization from the Lead Controller. The drill play continues upon coordination and concurrence between the Lead Controller and the field controllers.

Drill play will resume at the direction of the Lead Controller approximately 5 minutes after message 9B is issued.

THIS IS A DRILL
DO NOT initiate actions affecting safe operations.

MESSAGE:

ATTENTION ALL PERSONNEL. ATTENTION ALL PERSONNEL.

THE DRILL HAS BEEN SUSPENDED. ALL PERSONNEL ARE TO REMAIN IN THEIR CURRENT LOCATIONS. EMERGENCY RESPONDERS ARE NOT TO DISCUSS DRILL ACTIVITIES DURING THIS SUSPENSION. STAND BY FOR FURTHER INSTRUCTIONS REGARDING DRILL ACTIVITIES.

Make this announcement every 5 minutes.

THIS IS A DRILL
DO NOT initiate actions affecting safe operations.
MESSAGE 9B

HOLD MESSAGE 2

TO: All players
FROM: Lead Controller
TIME: Upon Suspension of Drill Play

NOTE: DO NOT issue this message without authorization from the Lead Controller. The drill play will occur upon coordination and concurrence between the lead controller and the field controllers.

Drill play will resume at the direction of the Lead Controller approximately 5 minutes after this message is issued. Controllers should use the 5 minutes prior to exercise continuation to remind players of what was occurring when play was suspended.

THIS IS A DRILL
DO NOT initiate actions affecting safe operations.

MESSAGE:

ATTENTION ALL PERSONNEL. ATTENTION ALL PERSONNEL.

DRILL ACTIVITIES WILL CONTINUE IN 5 MINUTES. DRILL CONTROLLERS WILL PROVIDE INFORMATION TO PLAYERS PRIOR TO CONTINUING THE DRILL.

THIS IS A DRILL
DO NOT initiate actions affecting safe operations.
MESSAGE 10
TERMINATION MESSAGE

TO: All Key Players/Notification Locations
FROM: Lead Controller
TIME: (02:00)

NOTE: Ensure all participating agencies are notified of drill termination via the notification system.

_____________________________________________________________________

THIS IS A DRILL
DO NOT initiate actions affecting safe operations.

MESSAGE:

The Spent Nuclear Fuel Drill is now terminated. Please make all necessary termination notifications. A drill debriefing will be conducted at _____________________ (location) at ____________ (time).

(Repeat Message)

_____________________________________________________________________

THIS IS A DRILL
DO NOT initiate actions affecting safe operations.
9.0 Radiological Data

The three spent fuel casks that fall off the rail car are not simulated to break open or have any radiation/contamination leaks.

If/when radiological monitoring surveys are performed (by the first responding unit(s) or the RAD Response Team), all general area monitoring results will be “as read”, including on contact with the casks.

Controllers should take note of whether players use their equipment properly (i.e., are instruments turned on and on the proper scale), but should not prompt them to do so. Regardless of whether the instruments are used correctly, controllers should verbally indicate to players that the equipment readings are “as read.”

Note: For safety purposes, do NOT allow players performing radiological monitoring survey operations to walk anywhere close to the railroad tracks to perform/demonstrate monitoring techniques. Instead, designate an area away from the tracks, for the purposes of the drill, for personnel to demonstrate this capability.

10.0 Meteorological Data

All weather conditions for this drill are “As Read,” with the exception that rain is NOT in the immediate forecast. If rain or another form of precipitation is actually occurring when drill play begins, players should be informed that precipitation is not occurring.

Drill play will be suspended for certain adverse weather conditions as described in the Safety Plan.

11.0 Public Information Data

There are no public information activities for this drill.

Refer any/all general public and/or media inquires to the "Official Drill Information Contact Point", as applicable, based on your location.
12.0 **Drawings/Props**

**Drawings**

A suggested site schematic drawing is provided on Figure 1. This may be modified to suit local site conditions.

**Props (suggested)**

Props that may be used for this drill include:

- Actual rail cars
- Placard(s) for Spent Fuel Casks (see Figure 2)
- Simulated shipping casks - May use metal garbage bins or other large boxes
- Shipping Documents (Figure 3)

Note: You may decide to use signs, flags and/or traffic cones as “props” in lieu of an actual truck and metal boxes, based on your budget and logistics considerations.
FIGURE 1 -- SUGGESTED SITE DRAWING

Note: Road names and landmarks may be drawn onto this figure to make it area-specific.
FIGURE 2 -- PLACARD FOR SPENT FUEL CASKS

SHADED
YELLOW

RADIOACTIVE
7
### FIGURE 3 – SHIPPING DOCUMENTS

**CONTAINS HAZARDOUS MATERIALS**

**STRAIGHT BILL OF LADING – SHORT FORM – Original – Not Negotiable**

<table>
<thead>
<tr>
<th>Shippers No.</th>
<th>Carrier No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TO: X**

<table>
<thead>
<tr>
<th>Consignee</th>
<th>Street</th>
<th>City</th>
<th>Zip</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FROM: X**

<table>
<thead>
<tr>
<th>Shipper</th>
<th>Street</th>
<th>City</th>
<th>Zip</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Route:**

**Delivering Carrier:**

<table>
<thead>
<tr>
<th>No.</th>
<th>HM</th>
<th>Description of vehicle, special marks, and equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>N</td>
<td>Radioactive material, fissile, n.o.s., &quot;Highway Route Controlled Quantity&quot;</td>
</tr>
</tbody>
</table>

- **Identity:** Uranium, Plutonium, and mixed fissile products
- **Form:** Solid form as aluminum-uranium alloy
- **Activity:** 967 Ci
- **Transport Index:** 0.2
- **Emergency Response Guidebook Number:** 155

**Freight Charges:**

- **C.O.D. Fee:**
- **COD:**
- **AMT:**
- **P.O.:**
- **P.O. Date:**
- **Weight:**
- **Dimensions:**
- **P.O. Number:**
- **Address:**
- **City:**
- **State:**
- **Zip:**

**SHIPPERS C.O.D.:**

- **Address:**
- **State:**
- **Zip:**

**CARRIER:**

- **Nome:**
- **Date:**

**Transport Emergency Preparedness Drill Manual TEPP-SNF**
Figure 4. EMERGENCY RESPONSE GUIDE 165

RADIOACTIVE MATERIALS (FISSILE/LOW TO HIGH LEVEL RADIATION)

POTENTIAL HAZARDS

HEALTH

- Radiation presents minimal risk to transport workers, emergency response personnel, and the public during transportation accidents. Packaging durability is related to potential hazards of material.

- Undamaged packages are safe; contents of damaged packages may cause external and/or internal radiation exposure.

- Packages (drums or boxes) identified as “Type AF” or “IF” by marking on packages or by shipping papers contain materials that are not life endangering if released. External radiation levels are low and packages are designed, evaluated, and tested to control releases and to prevent a fission chain reaction under severe transport accident conditions.

- Packages (metal and usually very heavy) identified as “Type B(U)F” or “B(M)F” by marking on packages or by shipping papers contain potentially life endangering amounts. Because of design, evaluation, and testing of packages, fission chain reactions are prevented and releases are not expected to be life endangering for all accidents except those of utmost severity.

- The transport index (TI) shown on labels or a shipping paper might not indicate the radiation level at one meter from the package; instead, it may indicate controls needed during transport because of the fissile properties of the materials.

- Some radioactive materials cannot be detected by commonly available instruments.

- Water from cargo fire control is not expected to cause pollution.
FIRE OR EXPLOSION

- These materials are not flammable and packagings are designed to withstand fires without damage to contents.

- Radioactivity does not change flammability or other properties of materials.

- Type AF, Type IF, and Type B packages are designed and evaluated to withstand total engulfment in flames at temperatures of 800°C (1475°F) for a period of 30 minutes.

PUBLIC SAFETY

- CALL Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.

- Priorities for rescue, life-saving, first aid, and control of fire and other hazards are higher than the priority for measuring radiation levels.

- Radiation Authority must be notified of accident conditions, and is usually responsible for radiological decisions.

- Isolate spill or leak area immediately for at least 25 to 50 meters (80 to 160 feet) in all directions.

- Stay upwind.

- Keep unauthorized personnel away.

- Detain or isolate uninjured persons or equipment suspected to be contaminated; delay decontamination and cleanup until instructions are received from Radiation Authority.
Figure 4. EMERGENCY RESPONSE GUIDE 165 (Continued)

PROTECTIVE CLOTHING

- Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters’ protective clothing will provide adequate protection against internal radiation exposure, but not external radiation exposure.

EVACUATION

Large Spill

- Consider initial downwind evacuation for at least 100 meters (330 feet).

Fire

- When a large quantity of this material is involved in a major fire, consider an initial evacuation distance of 300 meters (1000 feet) in all directions.

EMERGENCY RESPONSE

FIRE

- Presence of radioactive material will not change effectiveness of fire control techniques.

- Move containers from fire area if you can do it without risk.

- Do not move damaged packages; move undamaged packages out of fire zone.

Small Fires

- Dry chemical, CO₂, water spray or regular foam.

Large Fires

- Water spray, fog (flooding amounts).
Figure 4. EMERGENCY RESPONSE GUIDE 165 (Continued)

SPILL OR LEAK

- Do not touch damaged packages or spilled material.

- Slightly damaged or damp outer surfaces seldom indicate failure of packaging since most have an inner container.

Liquid Spills

- Package contents are seldom liquid. If any radioactive contamination resulting from a liquid release is present, it probably will be low-level.

FIRST AID

- Medical problems take priority over radiological concerns.

- Use first aid treatment according to the nature of the injury.

- Do not delay care and transport of a seriously injured person.

- Apply artificial respiration if victim is not breathing.

- Administer oxygen if breathing is difficult.

- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

- Injured persons who contacted released material may be a minor contamination problem to contacted persons, equipment and facilities.

- Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.
13.0 Simulations

Most drill activities will actually be performed as if the incidents were really occurring. The following list identifies the actions to be simulated when and if these actions are indicated in response to the simulated scenario events. Additionally, Controllers may direct participants to simulate certain activities to avoid performing actions that may cause adverse effects.

- Accident scene(s), damaged equipment, injured personnel, and other simulations shall be accomplished through the use of a sign(s) indicating the derailment location, etc. Props and mock-ups may be used in this drill.

- No public notification or any other actions affecting the general public should be implemented.

- Roadblocks or detours should be physically established to prevent public access to the drill area.

- Some roles and notification phone numbers may be simulated depending upon agencies that are participating. Simulated roles may include the RAD Response Team, Federal Agencies Notified, the Shipper, and agencies other than local emergency responders. These simulations shall be accomplished through the use of role players and assigned phone numbers to role players.

- The train and containers can be simulated using appropriate props.

14.0 Security

If necessary (depending on the location of your incident scene), some local law enforcement personnel (non-players) may be pre-staged at the scene for scene safety reasons (i.e., reroute traffic away from the simulated scene). However, the impact of the drill on the general public should be kept at a minimum.

Law Enforcement units and personnel who are actually dispatched as part of drill play should report to locations as directed for scene control. However, these units should NOT actually establish barricades or cordons that would affect the general public. Public Safety/Security controllers will determine the effectiveness of law enforcement activities by noting the arrival times, locations and simulated activities of these units.
15.0 Medical Data

There are no medical activities for this drill.