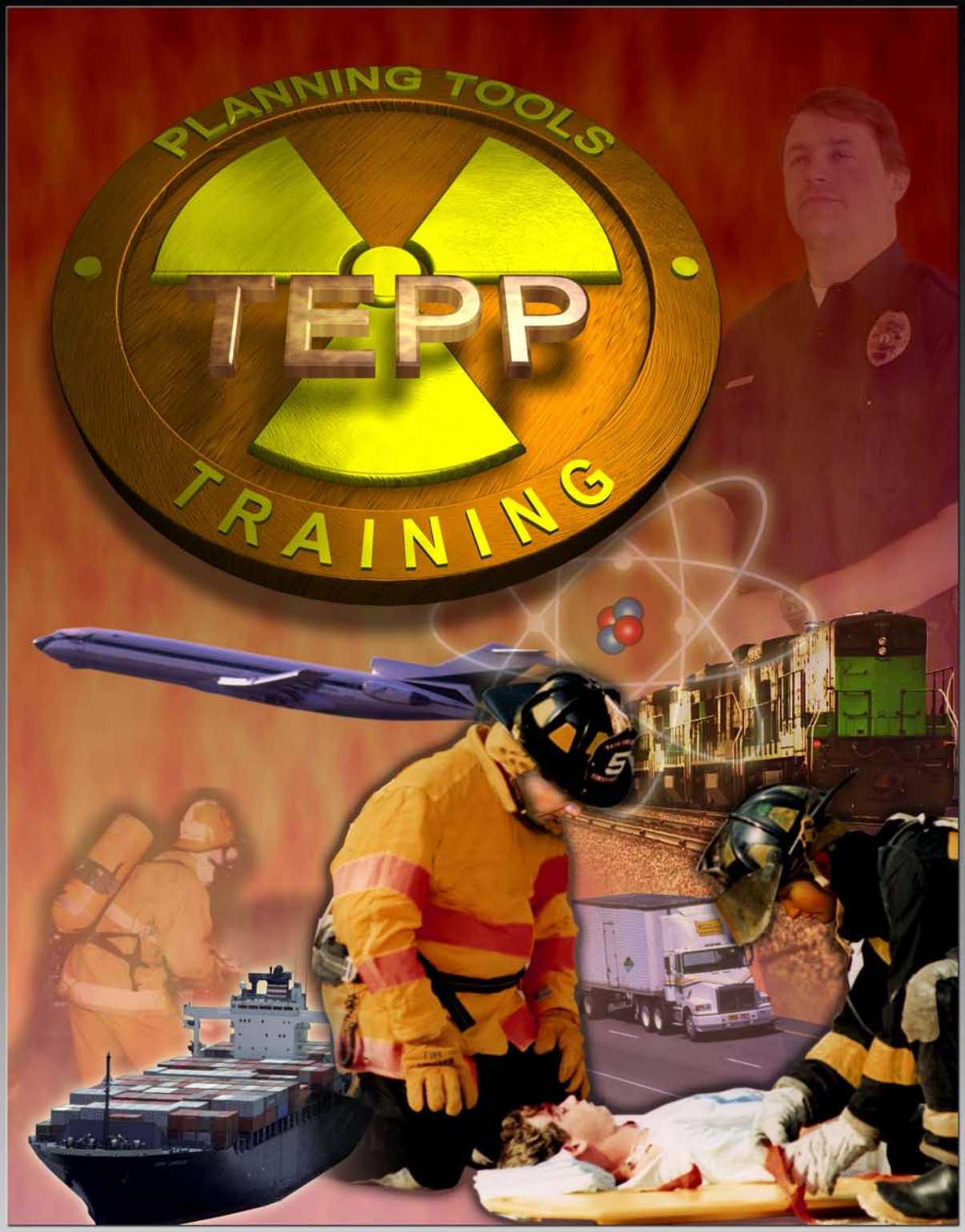
DEPARTMENT OF ENERGY

TRANSPORTATION EMERGENCY PREPAREDNESS PROGRAM



Radiography Device Transportation Accident Exercise Scenario

Prepared for the Department of Energy Office of Transportation and Emergency Management

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Transportation Emergency Preparedness Program (TEPP)

Drill-in-a-Box

Radiography Device
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Radiography Exercise

EXERCISE SUMMARY

- A truck carrying a radiography device is involved in a multiple vehicle accident
- The radiography device is ejected from the transporting vehicle
- The exercise simulates the initial occurrence of the accident through the arrival and integration of the state or local Hazardous Materials Response Team into the Incident Command System and the initiation of recovery efforts
- Appendix A includes guidance for developing an Exercise Safety Plan
- Appendix B includes evaluation forms to document player performance
- Appendix C includes a Chronology Log Sheet
- Appendix D includes the Radiological Data for the exercise

1.0 INTRODUCTION

This scenario provides the planning instructions, guidance, and evaluation forms necessary to conduct an exercise involving a highway shipment of a radiography device (Class 7 - Radioactive). This exercise manual is one in a series of five scenarios developed by the Department of Energy Transportation Emergency Preparedness Program. 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 carrier and the originating facility (shipper).

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

Radiography Exercise

2.0 SCOPE

This exercise scenario should be used to demonstrate the local community's emergency response deployment to a highway accident involving a radiography device. It may also be used to demonstrate the initial phase of the emergency response notification and communication system to:

- Demonstrate the emergency response notification and communication system
- Observe actual response times of emergency responders to a simulated accident scene
- 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 incident scene hazards
- Determine and implement protective measures required for the safety of both response personnel and the general public
- Determine additional response resources required to contain and restore the site and make appropriate notifications to obtain those resources
- 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 (highway) 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 objective's 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 may not be in sequential order. Appendix B of this document contains necessary evaluation forms to evaluate responder performance for this exercise scenario. A complete listing of the 16 FEMA HM-EEM objectives can be found in the "Hazardous Materials Exercise Evaluation Forms" document located on the TEPP webpage http://www.em.doe.gov/otem/program.html.

Radiography Exercise

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 backup communications systems (radio, cell phone, land line, etc.) should be used during the exercise as in an actual emergency. The exercise 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 and 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.

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 Incident Command 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, package markings, labeling, and the 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 the emergency.

Extent of Play:

This objective should be demonstrated by determining the resources required for response as a 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 backup communications systems (radio, cell phone, land line, etc.) should be used during the exercise as in an actual emergency. A communications system between response personnel should be established on site by the Incident Commander, as should offsite 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 a site safety officer establishing one or more zones to regulate the movement of personnel throughout the accident scene/site. Responders should also demonstrate usage of appropriate personal protective equipment (PPE), responder accountability system, and usage of appropriate monitoring equipment for site hazards.

Radiography Exercise

Objective 11 - Traffic and Access Control

Demonstrate the organizational ability and resources to implement site security, 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, utilization of appropriate resources, and effective traffic control. Although security units should be sent to the proper locations for traffic control, no actual roadblocks or detours that would affect the general public should be established.

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 hazardous material.

Extent of Play:
This objective should be demonstrated by notifying and obtaining resources for assistance. Personnel (response and additional resources) should assess the impact of the release, demonstrate appropriate planning strategies for control and containment, and then control and contain the released material, 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.

Radiography Exercise

4.0 EXAMPLE SCHEDULE

The table below provides an example schedule for planning and conducting the exercise. This schedule may be modified for site-specific exercise conditions. A more detailed checklist is included in Appendix A.

Date	Planning	Schedule
	120 Days	Conduct a planning meeting to discuss objectives, safety, and extent of play and identify player organizations. Also select exercise dates and location.
	90 Days	Validate objectives and modify exercise scenario to meet community response needs. Schedule needed responder training. Involve media to promote exercise activity.
	60 Days	Finalize exercise scenario, player organizations, and review modified exercise scenario. Identify and secure necessary exercise props.
	30 Days	Select controller and evaluator organizations. Conduct necessary controller and evaluator training.
	25 Days	Establish weekly planning meeting schedule. Planning meetings will be used to finalize remaining details. Establish an exercise punch list to ensure all planning and safety items have been assigned and are scheduled to be done.
	10 Days	Conduct player, evaluator and controller briefings.
	1 Day	Review Safety Plan, ensure exercise props are available, and make notifications to all agencies of exercise time and location.

Radiography Exercise

5.0 PARTICIPATION

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

Exercise Coordinators

Lead Planner
Safety Officer
Media Coordinator

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

State/Federal Agencies

State Hazardous Materials Response Team
State Radiation Authority
State Emergency Operations Center (EOC)
Nearby DOE Facility
US Environmental Protection Agency
Nuclear Regulatory Commission
National Response Team
National Response Center (US Coast Guard)
DOE Regional RAP Team

Commercial Organizations

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

6.0 CONDUCT

The following section provides guidelines for exercise conduct.

Concept of Operations

Three groups of personnel should participate in the exercise: 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 exercise. They perform an active role in the exercise 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 exercise continuity. Controllers are identified by wearing standard identification devices such as caps, or arm bands. Appendix A includes an exercise controller position listing table to assist in determining who is needed as a controller for the exercise.

Observers

Observers are persons who do not have an active exercise role but who watch exercise 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

Exercise Messages

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

Radiography Exercise

Contingency Messages

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

Implementation

Exercise 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 exercise 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 exercise 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 exercise controllers, players are to respond to exercise events and information as if the emergency were real. Players shall act as if simulated hazardous conditions were real.

All exercise participants shall take no action that reduces the safety of themselves or the public. All exercise 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 exercise 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 exercise messages and communications shall be preceded and followed by the phrase, "THIS IS AN EXERCISE."

Exercise Controller Guidelines

The responsibility of exercise controllers is to ensure that exercise events occur in the sequence prescribed by the scenario and to monitor exercise play. Exercise controllers must be familiar with the suspension of play procedures that pertain to their assigned area.

Radiography Exercise

Before Exercise Day

1. Familiarize yourself with the exercise objectives and extent of play applicable to your area of control.
2. Ensure that you understand the scenario and timeline.
3. Obtain and review suspension of play procedures applicable to your area of control.
4. Familiarize yourself with the controller organization and communication methods.
5. Review exercise 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 walk-down of your observation location(s) to ensure you know where and when you must report prior to exercise commencement.

Immediately Prior to the Exercise

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 Exercise

1. Ensure that safety remains the number one priority for all actions and activities carried out during the exercise.
2. Identify all players that you will be controlling during the exercise, and inform them of your function.
3. If applicable during the exercise, brief all players in your area on exercise 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 exercise.
4. Remain at your assigned location until the exercise 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 exercise and notify the Lead Controller.
7. Refer any/all actual general public and/or media inquiries to the “Media Coordinator,” 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.

Radiography Exercise

10. Distribute exercise 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 Exercise Chronology Log in Appendix C.
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.

Termination

Upon Exercise Termination

1. Complete Exercise Chronology Logs.
2. Document exercise findings on the appropriate Exercise Evaluations Forms found in Appendix B and the Exercise Chronology Log found in Appendix C,
3. Participate in the post-exercise debriefing.

Exercise Controller Debrief/Exercise Report

Immediately upon termination of the exercise, exercise controllers should meet to review player actions and identify exercise issues. An exercise report documenting exercise observations should be prepared upon completion of the exercise and should be submitted to the appropriate organizations.

7.0 NARRATIVE SUMMARY/TIMELINE

The following section provides a narrative summary of the exercise scenario and an approximate timeline (Table 2.0, located on page 17) for exercise activities. The timeline also provides anticipated points during the exercise where dissemination of the exercise messages contained in Section 8.0 are appropriate. The scenario and timeline are suggested guidelines for the exercise and may be modified to meet site-specific conditions.

Radiography Exercise

Initial conditions (which are assumed to have occurred prior to exercise commencement):

A delivery van is transporting a portable radiography device from a construction company to a radiography equipment vendor who leased the equipment for use in non-destructive testing and inspection. The source being transported is an 80 curie (2.96 TBq) Iridium-192 (Ir-192) special form source. The radiography source is being transported in a Type B package. The van is traveling through the local area and approaches a railroad crossing.

The van stalls on a railroad crossing in traffic. Noticing an oncoming train, the driver gets out of the vehicle and goes to a safer location. There are several cars also at the railroad crossing. Several drivers try to move their cars (as they have recognized the impending collision) or abandon their cars. Others stay in their cars.

The train attempts to brake, but only partially slows down. The impact with the van causes it to spin around, ejecting the radiography source from the back. The train comes to a stop (with the engine several hundred yards down the track) and does not derail. The radiography device lands approximately 30 feet from the van and appears to be intact.

Three motorists are injured as a result of the van being propelled into their parked cars. Their injuries are not life-threatening. The first motorist receives an injury on his/her arm, the second motorist receives a chest injury, and the third motorist receives a head injury.

Meteorological conditions summary:

- Wind direction is “as read”
- Temperature is “as read”
- Wind speed is “as read”
- Assume rain is in the immediate forecast

NOTE: The assumption of rain may be omitted at the discretion of the Lead Controller, depending on weather conditions on the day of the exercise. See Section 10.0, Meteorology, for details.

Exercise play begins at this point:

A motorist at the scene reports the accident to the local emergency notification network (e.g., 911). The motorist reporting the accident is not aware of the cargo in the van, only that it was hit by the train. Emergency response units should be dispatched to the incident scene, based on the information 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, and EMS. Upon the arrival of the first responders, the van driver reports that the van was carrying a radiography device that has been ejected from the van.

Radiography Exercise

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 be allowed within direct proximity of the radiography device. Because of the unknown nature of the hazard, 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 (ERG). Proper site control and evacuation procedures should be implemented as outlined in ERG Guide 163. The Emergency Response Guidebook states, persons within 80-160 feet of the incident scene should be evacuated.

Emergency responders should assess the extent of injuries, provide initial treatment, and then transport victims to the hospital (hospital transport will be simulated). If the possibility exists for victim contamination, emergency responders should take actions to minimize the potential spread of contamination.

The IC may question the van driver about the shipping papers and determine that the papers are still located in the van and will need to be retrieved. Once retrieved, the IC may have the dispatcher contact the state Radiation Authority and the emergency response number on the shipping papers. The emergency contact (simulated by a role player) should provide technical data and response information specific to the material involved. This information is provided to the dispatcher and passed on to the IC.

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

Radiography Exercise

The IC will discuss response resources and actions with Radiation Authority to determine the need for a HMRT deployment. For the purpose of this exercise, the communication between the Radiation Authority and the IC will result in a decision to deploy the Hazardous Materials Response Team to the accident scene.

Upon completion of emergency response actions, the IC should direct responders to implement contamination control practices. Responders should establish a decontamination corridor and perform a survey or conduct a dry decontamination. The IC should direct responders who have entered the hot zone be separated and isolated until surveyed and determined to be clean.

Upon Hazardous Materials Response Team arrival, the Team Captain should report to the Incident Command post and request an accident scene briefing. The IC should provide a status briefing and make appropriate requests for radiological monitoring.

The Hazardous Material Response Team will verify that established contamination practices were effective and decontamination has been completed. The Hazardous Material Response Team will assist the IC in the development of a recovery plan. The recovery plan will identify needed response actions including survey needs, clean up plans, the documentation process, and the need for responder follow up (whole body counting, dosimetry records, etc.). The accident scene will be surveyed by the Hazardous Material Response Team or Radiation Authority (as applicable) to verify the accident area is free of contamination.

The onsite portion of the exercise should be terminated upon determination that there is no contamination present at the scene and the IC has briefed the Hazardous Material Response Team explaining the status of the shipment, actions taken, and plans to complete the delivery of the package to the shipper. An exercise debriefing should be conducted upon termination of the exercise to provide evaluation results and lessons learned to all participating players.

Radiography Exercise

2.0: Timeline

Actual Time	Suggested Time	Event or Expected Action	Message #
	-01:00	All controllers are in place. Communications and time check completed between Lead Controller and staff.	
	-00:15	Incident scene is set up (exercise controllers, players, props, signs, etc.).	
	00:00	Simulated train collision with stalled van occurs at railroad crossing.	
	00:05	Motorist calls (actual) emergency response network (911) and reports accident/scene conditions.	1
	00:10	Dispatch of emergency units is prompted.	2
	00:15	Emergency response units arrive and begin initial incident scene assessment.	3
	00:20	ICP established.	
	00:20	EMS personnel begin treating victims.	Medical Messages 1-3
	00:20	Site security and control established.	
	00:40	EMS transports victims to hospital as appropriate (simulated).	
	00:45	Scene assessment message is used to prompt assessment activities.	4
	00:45-01:30	IC appoints Public Information Officer.	
	00:55	The local or state dispatcher should be directed by the IC to contact the shipper. The IC or designee should discuss any specifics about the shipment with the shipper.	5
	00:60	IC requests the deployment of the Hazardous Materials Response Team (HMRT) to the accident scene.	
	01:30	HMRT arrives. HMRT Captain meets with IC to discuss current status and assist with mitigation of the accident scene. Recovery efforts begin. If the HMRT Captain and IC are not communicating, input message 6.	6
	01:40	Radiation survey performed on radiography device (if equipment is available).	
	02:00	Recovery operations begin.	
	TBD	Hold messages 1 and 2 to be used only for breaks in play.	7A/B
	02:10	Exercise termination announcement to all agencies.	8
	02:20	Exercise controllers and players return incident scene to pre-exercise conditions.	
	02:30	Exercise controllers/players debriefed and incident documentation reviewed.	

8.0 MESSAGES

This section provides messages to be used during the exercise to ensure continuity of play. The messages provide critical scenario data.

Radiography Exercise

MESSAGE 1

Incident Scene Message

TO: Emergency Response Network Dispatcher
FROM: Motorist (Player)
TIME: (00:05)

NOTE:Call in this message via cell phone upon Lead Controller authorization to commence the exercise. This message provides a "bystander" eye-witness notification of the accident. Also, explain the scene described in this message to all other role players to ensure accounts provided to first responders are consistent.

THIS IS AN EXERCISE. DO NOT initiate actions affecting safe operations.

Call the Local Emergency Response Network Dispatcher (e.g., 911) and issue the following message:

Message:

"This is an exercise. This is _____. I am on State Highway _____ at the railroad crossing and there has been a wreck involving a train and a van."

"The van collided with other cars stopped at the crossing. I don't know if anyone was injured. The train does not appear to have left the track."

THIS IS AN EXERCISE. DO NOT initiate actions affecting safe operations.

Radiography Exercise

MESSAGE 2 (CONTINGENCY MESSAGE)

Initial Dispatch of Units

TO: Emergency Response Network Dispatcher
FROM: Dispatch Controller(s)
TIME: (00:10)

NOTE:Issue this message with concurrence of the Lead Controller if no actions have been or are being taken to dispatch emergency units (i.e., police, fire department, HazMat, or EMS) to the incident scene.

THIS IS AN EXERCISE. DO NOT initiate actions affecting safe operations.

Message:

"For the purpose of this exercise, you are directed to dispatch the following emergency response units to the incident scene" (list only the applicable units that have not already been dispatched, as shown below):

- Fire Department
- Police Department
- EMS

THIS IS AN EXERCISE. DO NOT initiate actions affecting safe operations.

MESSAGE 3 (CONTINGENCY MESSAGE)

Responder Arrival to Scene, Initial Condition Assessment

TO: Responders at the Scene
FROM: Incident Scene Controllers
TIME: (00:15)

NOTE: This message serves to provide players with a description of simulated incident conditions. The police/sheriff should be first to arrive. 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 site of the specified conditions IF adequate props are not available. Use the drawing in Section 9.0 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 AN EXERCISE. DO NOT initiate actions affecting safe operations.

Message:

For the purpose of the exercise, the following information is to be provided to responders within line of site (if props are unavailable):

- The train has collided with the van.
- The driver of the van escaped before the collision and states that there was a radiography device on board the van.
- The destroyed van collides with other cars at the intersection.
- The radiography device is ejected and located in the grass approximately 30 feet from the van.
- There is no smoke or evidence of fire or an explosion.

THIS IS AN EXERCISE. DO NOT initiate actions affecting safe operations.

Radiography Exercise

MESSAGE 4 (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 phase. This message may be used to prompt the players to proceed with the exercise. Issue only those portions of the message that are appropriate (i.e., have not been considered or begun).

THIS IS AN EXERCISE. DO NOT initiate actions affecting safe operations.

Message:

Issue only the applicable portions of the message below:

"For the purpose of this exercise, you are directed to take appropriate actions to obtain shipping paper information from the driver for the purpose of hazards assessment."

Only issue the following statement if resources are not adequate to handle the situation:
"You are also directed to determine if resources available are adequate for thorough site assessment and site control."

THIS IS AN EXERCISE. DO NOT initiate actions affecting safe operations.

MESSAGE 5 (CONTINGENCY MESSAGE)

Shipper Information

TO: Emergency Network Dispatcher or Incident Commander (as applicable)
FROM: Dispatcher Controller or Lead Controller (as applicable)
TIME: (00:55)

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.

THIS IS AN EXERCISE. DO NOT initiate actions affecting safe operations.

Message:

Issue only the appropriate portions of the message below, per the following instructions: If the IC does not question the driver of the van carrying the radiography device to obtain information about the shipping papers, prompt him/her to do so (Part 1). Also, 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, input the information noted below (Part 2). If the shipper is not playing, use Part 3 of this message to simulate the shipper. If the dispatcher receives shipping data but does not relay it to the IC, issue Part 4:

PART 1: Issue only if the IC does not question the driver of the van carrying the radiography device to obtain information about the shipping papers. Relay the following message to the IC:

"For the purpose of this exercise, you are directed to question the driver of the van about the shipping papers to obtain information about the material being shipped."

PART 2: Issue only if action is NOT 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:

"For the purpose of this exercise, you are directed to contact the shipper of the radiography device using the following number (number to be provided by driver)."

Radiography Exercise

MESSAGE 5 (CONTINGENCY MESSAGE) - continued

PART 3: Issue only 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 a portable radiography device that was being transported from a construction company to a radiography equipment vendor who leased the equipment for use in non-destructive testing and inspection. The source being transported is an 80 curie (2.96 TBq) Iridium-192 (Ir-192) special form source. Cordon off the area, evacuate 80-160 feet."

PART 4: Issue only 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. Relay the following message to the IC:

"For the purpose of this exercise, you are directed to contact the IC and relay the technical information provided to you by the shipper."

THIS IS AN EXERCISE. DO NOT initiate actions affecting safe operations.

MESSAGE 6 (CONTINGENCY MESSAGE)

Response Team Briefing with the Incident Commander

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

NOTE: The purpose of this message is to ensure the Hazardous Materials Response Team is integrated into the Incident Command System after their arrival. If an actual or simulated (by role players) Hazardous Materials Response Team is participating, this message will be used to prompt the IC to give a situation briefing to the Hazardous Materials Response Team if the IC does not initiate this action within approximately 10 minutes of Hazardous Materials Response Team arrival. If the Hazardous Materials 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 AN EXERCISE. DO NOT initiate actions affecting safe operations.

Message:

Issue this portion of the message ONLY if the Hazardous Materials 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 Hazardous Materials Response Team a briefing and then integrate them into the response activities."

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

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

THIS IS AN EXERCISE. DO NOT initiate actions affecting safe operations.

Radiography Exercise

MESSAGE 7A

Hold Message 1

TO: All Players
FROM: Lead Controller
TIME: Upon Suspension of Exercise Play

NOTE: DO NOT issue this message without authorization from the Lead Controller.

Continuation of the exercise play will occur upon coordination and concurrence between the Lead Controller and the Field Controllers. Exercise play will resume at the direction of the Lead Controller approximately 5 minutes after message 7b is issued.

THIS IS AN EXERCISE. DO NOT initiate actions affecting safe operations.

Message:

"Attention, all personnel. Attention, all personnel."

"The exercise has been suspended. All personnel are to remain in their current location. Emergency Responders are not to discuss exercise activities during this suspension. Stand by for further instruction regarding exercise activities."

Make this announcement every 5 minutes.

THIS IS AN EXERCISE. DO NOT initiate actions affecting safe operations.

MESSAGE 7B

Hold Message 2

TO: All Players
FROM: Lead Controller
TIME: Upon Suspension of Exercise Play

NOTE: DO NOT issue this message without authorization from the Lead Controller.

Continuation of the exercise play will occur upon coordination and concurrence between the Lead Controller and the Field Controllers. Exercise 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 AN EXERCISE. DO NOT initiate actions affecting safe operations.

Message:

"Attention all personnel. Attention all personnel."

"Exercise activities will resume in 5 minutes. The exercise controllers will provide information to players prior to continuing the exercise."

THIS IS AN EXERCISE. DO NOT initiate actions affecting safe operations.

Radiography Exercise

MESSAGE 8

Termination Message

TO: All Key Players/Notification Locations
FROM: Lead Controller
TIME: (02:10)

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

THIS IS AN EXERCISE. DO NOT initiate actions affecting safe operations.

Message:

"The Radiography Device Exercise is now terminated. Please make all necessary termination notifications. An exercise debriefing will be conducted at _____ (location) at _____ (time)." (Repeat Message)

THIS IS AN EXERCISE. DO NOT initiate actions affecting safe operations.

Radiography Exercise

9.0 RADIOLOGICAL DATA

Included in this section are:

- Scene Description
- Radiation/Contamination Data

Scene Description

There will be one Type B radiography device in the back of the vehicle. The container will have broken loose from the bracing that secured it in the back of the vehicle and will be ejected from the vehicle upon impact. The Type B package will not be breached in the accident.

Radiation/Contamination Data

See Appendix D for a Radiological Data Worksheet. The controller should take notice of which type of detector/probe is attached to the responder's instrument or the type of survey instrument used (radiation/contamination) as applicable. The controller should ask the responder (based upon which instrument or probe is used) how they would report their readings (i.e., in cpm or mR/hr). If a contamination survey instrument is used, readings should be requested and given in counts per minute. If a radiation survey instrument is used, the readings should be requested and given in mR/hr. Responders should realize that direct readings for contamination cannot be taken on the package itself because of the radiation penetrating through the package. Contamination surveys should be taken by wiping or smearing the outside of the package and then checking each wipe for contamination in a low background area (i.e., away from the package).

The Type B package will be lying on the ground, just off the road near the other vehicles involved in the accident, as shown in the photo on the following page. If/when radiological monitoring surveys are performed (by the first responding unit(s) or the Hazardous Materials Response Team) the following radiation/contamination levels will be found:

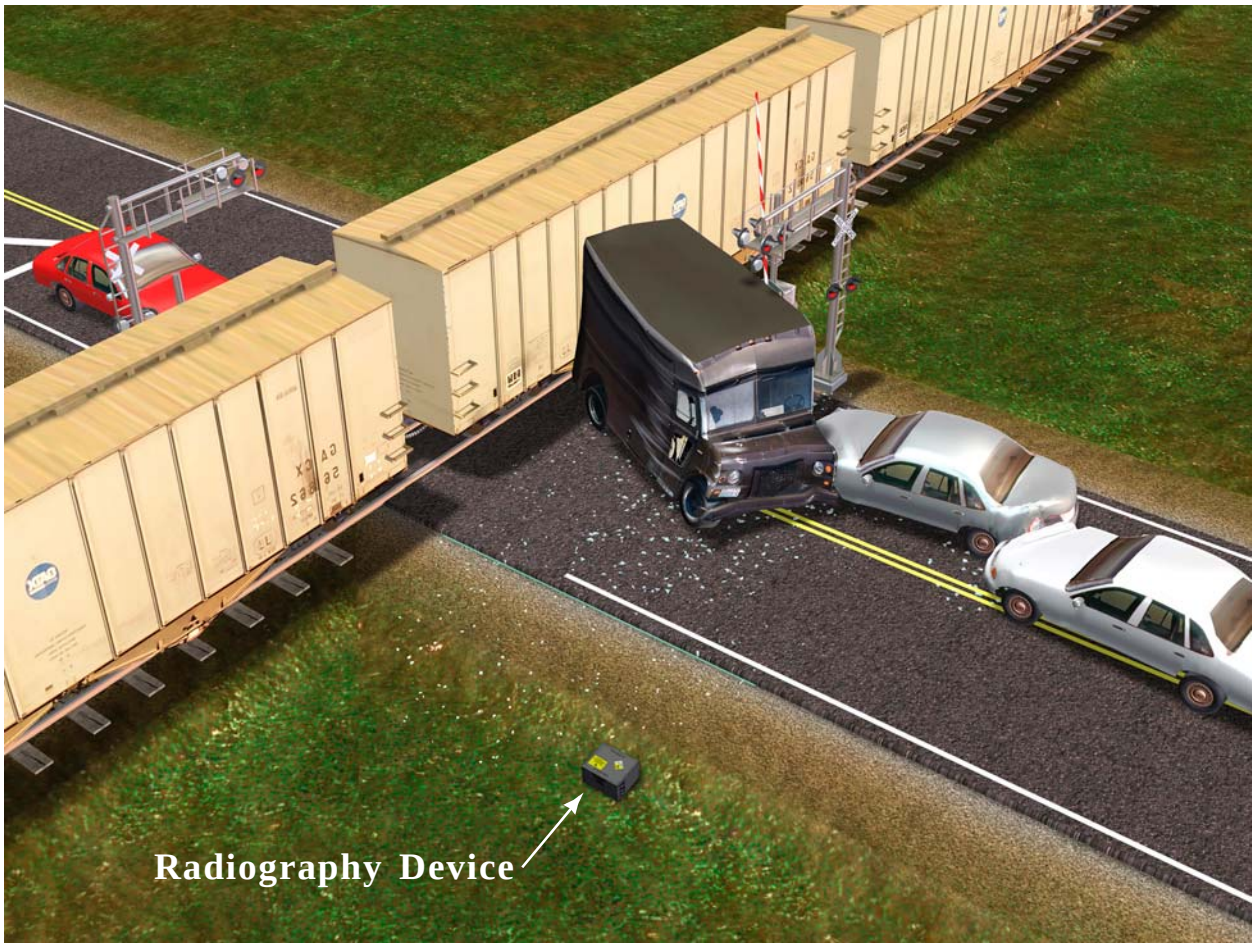
In close proximity to the package, if a contamination survey instrument (e.g., instrument with pancake probe) is used to directly survey the road surface, personnel will detect between 7,500 and 35,000 cpm (this will be due to elevated background readings from the radiography device, not contamination). Readings taken on contact with the package will be approximately 180,000 cpm or 45 mR/hr (depending upon which type of instrument the responder uses). If applicable, there will be no difference between open window and closed window readings if the responder takes open/closed window readings with a radiation survey instrument.

If the package and/or camera are smeared for contamination and smears are checked in a low background area, no contamination will be found.

Radiography Exercise

Controllers should only give the above radiological data to players if and when they use their survey equipment properly. For instance, if players do not turn their equipment on, or are not on the proper scale, controllers should indicate to them that their instruments are reading zero/off-scale as appropriate. 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.

Figure 1: Suggested Site Layout



10.0 METEOROLOGICAL DATA

All weather conditions for this exercise are "as read," with the exception of rain in the forecast. If rain is actually occurring when exercise play begins, play meteorology "live." If actual meteorology calls for snow (or another form of precipitation different from rain), the Lead Controller may, at his/her discretion, modify the initial conditions calling for rain. Exercise play will be suspended for certain adverse weather conditions as described in the Safety Plan as outlined in Appendix A.

Radiography Exercise

11.0 PUBLIC INFORMATION DATA

There are no public information (exercise play) activities for this exercise. Refer any/all "actual" general public and/or media inquiries to the "Media Coordinator." The exercise point of contact is determined during the first exercise planning meeting.

12.0 PROPS

Props that may be used include:

- Van and simulated debris from van
- Other vehicles at intersection
- Box or container to simulate radiography device (MERRTT GoKit Item)
- Examples of package markings and labels are provided with the radiological data in Appendix D
- Shipping papers and the Emergency Response Guidebook Guide 163, are provided with the radiological data in Appendix D
- Moulage for three victims

13.0 SIMULATIONS

Most exercise activities will actually be performed as if the incidents were really occurring. The following list identifies the actions to be simulated. 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 may be accomplished through the use of a sign(s) indicating the truck wreck location, etc. Props, mock-ups, and victim role players should be used in this exercise.
- No public notification or any other actions affecting the general public should be implemented.
- Safety roadblocks or detours may be physically established prior to the exercise to enhance safety.
- Additional roadblock locations should be established by appropriate agencies for traffic control and player safety.
- Some roles and notification phone numbers may be simulated depending upon agencies that are participating. Simulated roles may include the Hazardous Materials Response Team, federal agencies, 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, van, and radiography device may be simulated using appropriate props.
- Transport of injured persons to the hospital may be simulated if the local hospitals are not participating in the exercise.

Radiography Exercise

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 exercise on the general public should be kept at a minimum. Law Enforcement units and personnel who are actually dispatched as part of exercise 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

Three people are injured in the accident (referred to as victims A, B, and C). Victims A and B are in one car and victim C is in another car. There are no fatalities. Victim A has a broken arm, victim B has a chest injury, and victim C has a head injury. All injuries result from the radiography van being propelled into the stopped cars after impact with the train engine.

The following medical messages will be used by the EMS Controller to relay information to the EMS/medical players. Medical play will terminate when the victims are loaded onto the ambulance. Actual transport of the victims (role players) to the hospital will be simulated.

MEDICAL MESSAGE 1
MODERATE FRACTURE OF AN ARM

TO: First Responders/EMS
FROM: EMS Controller
TIME: Upon Arrival of Medical Personnel

NOTE:This data applies to a patient (victim A) with a moderate fracture of an arm. Do not provide this data to players unless the means to obtain it are demonstrated.

THIS IS AN EXERCISE. DO NOT initiate actions affecting safe operations.

Message:

Patient complains of point tenderness with ecchymosis (bruising), edema (swelling), and deformity present at pain location. Patient presents with guarding of injured extremity. Distal pulses and sensation are present.

Expected Action:

Follow local protocols or standing orders.

THIS IS AN EXERCISE. DO NOT initiate actions affecting safe operations.

Radiography Exercise

MEDICAL MESSAGE 2
CHEST INJURY

TO: First Responders/EMS
FROM: EMS Controller
TIME: Upon Arrival of Medical Personnel

NOTE:This data applies to a patient (victim B) who received a blow to the chest area. Do not provide this data to players unless the means to obtain it are demonstrated.

THIS IS AN EXERCISE. DO NOT initiate actions affecting safe operations.

Message:

Flail chest segment noted. Distended neck veins present. Breath sounds absent on affected side. Breath sounds will remain absent until pleural decompression is accomplished.

Expected Action:
Follow local protocols or standing orders.

THIS IS AN EXERCISE. DO NOT initiate actions affecting safe operations.

MEDICAL MESSAGE 3
HEAD INJURY

TO: First Responders/EMS
FROM: EMS Controller
TIME: Upon Arrival of Medical Personnel

NOTE:This data applies to a patient (victim C) who has been struck on the occipital region of the skull. Do not provide this data to players unless the means to obtain it are demonstrated.

THIS IS AN EXERCISE. DO NOT initiate actions affecting safe operations.

Message:

Hematoma noted with an approximate 3 inch laceration. Bleeding has been controlled. No deformity noted. Loss of consciousness for approximately 45 seconds.

Expected Action:
Follow local protocols or standing orders.

THIS IS AN EXERCISE. DO NOT initiate actions affecting safe operations.

APPENDIX A
EXERCISE CHECKLIST FOR PLANNING AND SAFETY

Exercise Date _____

To obtain additional information on the "Guidance for Planning, Conducting and Evaluating Transportation Emergency Preparedness Exercises" refer to the Department of Energy web site http://www.em.doe.gov/otem/program.html.

Phase 1 - Planning

1. _____ Determine the scope, objectives and extent of play for the exercise (exercise may be modified to meet local needs and objectives)
2. _____ Determine exercise participants
3. _____ Establish schedule and plan for the exercise
4. _____ Notify proposed participating agencies and confirm support
5. _____ Determine locations for exercise activities (command center, accident scene, dispatcher's office, etc.)
6. _____ Develop a safety plan (use Exercise Checklist for Planning and Safety/Appendix A)
7. _____ Determine if pre-notification to the media is necessary (if a sample media plan is needed, refer to the DOE web site shown above to obtain information on Guidance for Planning, Conducting and Evaluating Transportation Emergency Preparedness Exercises. If further emergency information is needed, please contact a Public Information Officer to handle notifications/inquiries.
8. _____ Establish controller assignments and simulated roles
9. _____ Review the Exercise Evaluation Form for each objective found in Appendix B with participating agencies to ensure the objective will be completed as part of exercise play.
10. _____ Modify the shipping document included in Appendix D to include exercise specific information (such as the emergency response phone number). Ensure the shipping documents and package have necessary information, labels or markings.
11. _____ Reproduce sufficient copies of completed/reviewed scenario packages, as well as copies of the applicable Exercise Evaluation Forms.
12. _____ Determine and acquire props needed for site simulation
13. _____ Conduct player and observer briefings

Radiography Exercise

Phase 2 - Exercise Setup

1. _____ Ensure all controllers know the schedule and their designated position
2. _____ Ensure all props have been evaluated and validated prior to set up
3. _____ Install the props at each exercise location
4. _____ Ensure safety precautions are in place
5. _____ Verify all controllers are in position and key players/agencies are available to start

Phase 3 - Exercise Play

1. _____ Ensure safety is, and remains, the most important concern of the exercise
2. _____ Ensure controllers are in place
3. _____ Ensure messages are distributed according to schedule
4. _____ Utilize hold messages if a break in play is needed
5. _____ Ensure ALL players and controllers at all exercise locations receive the exercise termination message

Phase 4 - Post Exercise Activities

1. _____ Dismantle exercise scene props and return site to original state
2. _____ Direct all players and controllers to the debriefing location(s)
3. _____ Conduct exercise debriefing based on controller and player evaluations
4. _____ Document and track exercise strengths and recommended improvement areas

SAFETY PLAN AND CHECKLIST

The example Safety Plan and Checklist presented here is for a transportation emergency exercise. The example is generic, and may not be complete for your jurisdiction. Take time to identify and include necessary event-specific information.

SAFETY PLAN SCOPE

This plan has been included as a scenario package checklist so that controllers will be able to anticipate and recognize unplanned events that could result in personal injury or unforeseen property damage. It enables event participants to be governed by the safety guidelines established for the event.

PRE-EXERCISE SAFETY REQUIREMENTS

Controllers must be staged before the event is scheduled to begin to ensure there are no preexisting safety concerns that could affect the start of the event. Controller assignments and locations are identified at the end if this Appendix (page 41). The exercise Lead Controller must obtain a status of any identified safety concerns from all lead controllers prior to event commencement.

Radiography Exercise

EXERCISE ACTIVITY BOUNDARIES AND OFF-LIMIT AREAS

Exercise boundaries, which define the areas at the incident scene that will be in and out of play, will be discussed in briefings, if applicable. Boundaries may also be defined by the "extent of play" for each objective, as shown in Section 3.0, Objectives. Safety concerns that arise during the exercise will be dealt with immediately by the exercise controllers in the affected area. As objectives are accomplished, certain areas may be allowed to return to normal activities.

SAFETY EQUIPMENT

Exercise participants are required to follow all existing safety guidelines for the use of protective equipment. From the checklist below, mark an X next to the items that are applicable to this exercise, and ensure that these items are provided for participants, as needed.

_____ Controller communications (e.g., radios, cell phones, etc.)
_____ Exercise identification (i.e., armbands, vests, caps, etc.)
_____ Illumination devices
_____ First aid kit
_____ Water coolers (field teams may be directed to carry their own water)
_____ Water carriers (rovers may be directed to deliver water to personnel)
_____ Personnel comfort items (specify)
_____ Fire extinguishers
_____ Safety harnesses/lifelines, etc. (specify)
_____ Eye/hearing protection devices (specify)
_____ Gloves (specify who and when they should be worn)
_____ Hard hats (specify who and when they should be worn)
_____ Other protective clothing (specify)
_____ Miscellaneous hand tools (specify)

SITE SPECIFIC HAZARDS

Exercise participants are required to follow all hazard postings in event areas. Participants must obey all traffic laws during the event. Response participants will NOT use emergency lights and sirens when responding to simulated accident scenes. No vehicles should go off road where wildlife, such as snakes and insects, may be encountered. In the event of electrical storms, high winds or other severe weather, participants will follow controller instructions. Field activities should be suspended or terminated under these conditions.

Controllers and responders must be mindful of symptoms of heat stress and hypothermia. Controllers will ensure that emergency response personnel are allowed the opportunity to rest whenever necessary. Controllers must halt exercise play anytime a responder appears to be in distress, and take all appropriate actions to ensure the well-being of individuals.

Radiography Exercise

From the checklist below, mark an X next to the actual hazards that may be applicable to this exercise. Special safety provisions should be made for all items checked.

_____Traffic (field teams need to be aware of road condition hazards and traffic, especially when performing radiological monitoring)
_____Terrain (field teams may be required to use unpaved roads. Each vehicle will be equipped with a fire extinguisher, shovel, bucket, and communications capabilities)
_____Overhead obstructions and hazards (i.e., power lines)
_____Electrical storms
_____Heat stress
_____Cold stress (hypothermia)
_____High winds
_____Visibility conditions
_____Electrical equipment hazards
_____Mechanical equipment/machinery
_____Hazardous material/storage areas
_____Fuel loading concerns
_____Thermal hazards
_____Tripping hazards
_____Confined spaces
_____Elevated locations
_____Hazardous materials
_____Pest control (i.e., ants, wasps, snakes, ticks, mosquitoes, etc.)
_____Personnel safety provisions (individual responsibilities/limits)
_____Outside agency safety provisions (responsibilities/limits)
_____Vehicle safety provisions (i.e., traffic laws shall be obeyed, seat belts used, etc.)
_____Exercise control provisions (i.e., safety briefings, how to handle actual emergencies, etc.)
_____Vehicle props are safe, fuel tanks drained, combustible materials removed if a fire is planned, broken glass has been removed or made safe

GENERAL SAFETY PROVISIONS

This section details specialized personnel assignments and functions related to safety concerns. Section 6.0, Conduct, of this scenario describes the controller organization, Page 41 provides an example listing of controllers and assignments. No changes will be made to controller assignments without prior assurance that any replacements have equal or greater understanding of safety concerns that could be encountered at the location to which they are assigned.

All safety concerns must be brought to the attention of the exercise Lead Controller and the exercise Safety Leader through the Controller Communications Network. Incidents and materials that may have adverse effects on people have been addressed in this section of the scenario manual.

Radiography Exercise

Every effort has been made to anticipate and minimize hazardous situations inherent in this exercise. From the checklist below, mark an X next to the safety provisions that are applicable to this exercise, and ensure that these provisions are communicated to participants and/or enforced.

_____Individual participants are personally responsible for their own safety

_____Each participant must monitor his/her own physical condition for signs of over exertion or distress

_____Any participant who observes another person injured or otherwise in need of assistance will immediately cease exercise activities and render aid/call for assistance

_____All injuries, no matter how slight, must be immediately reported to the nearest controller

_____All ascents or descents from elevated heights will be by ladder, stairway, or other safe method. Jumping from elevated positions is not allowed

_____Controllers must be familiar with the hazards of the equipment involved and the required safety measures

_____Actual emergencies will be dealt with by a shadow force. If an emergency occurs that requires exercise responders to assist, the Lead Controller will suspend or terminate part or all of exercise play as deemed necessary

SECURITY/PUBLIC SAFETY PROVISIONS

From the checklist below, mark an X next to the security and public safety provisions that are applicable to this exercise. Special safety provisions should be made for all items checked.

_____ A backup or shadow force (fire, EMS, and police) is in place to ensure community coverage is not impacted by event response

_____ Event calls should/may go to non-emergency lines to ensure that actual "911" law enforcement calls are handled expeditiously

_____ Law Enforcement personnel must keep firearms holstered at all times during the exercise

_____ Exercise play will be suspended in the event of an actual emergency

_____ Emergency vehicles will respond without lights and sirens

_____ Cordoning off of large public areas will be simulated unless cordoning is required for safety reasons

_____ Rerouting traffic will be simulated unless cordoning is required for safety reasons

VEHICLE SAFETY PROVISIONS

From the checklist below, mark an X next to the vehicle safety provisions that are applicable to this exercise. Ensure that these provisions are communicated to participants and/or enforced.

_____ No vehicle will be driven in such a manner that posted speed limits are exceeded or safe driving rules are violated

_____ Only those vehicles involved in the exercise will be used for movement

Radiography Exercise

_____ Vehicles may not be mounted or dismounted until they come to a complete stop
_____ Spotters will be used when backing vehicles out of areas where other people or vehicles are present
_____ Roadblocks will be simulated by placing a blocking vehicle on the shoulder of the road and notifying an observer that a roadblock has been established
_____ All controller vehicles should be identified/placarded to eliminate player confusion or concerns
_____ Seat belts must be worn in moving vehicles

EXERCISE SIGNATURE PAGE

A copy of the completed Exercise Scenario and any final report should be filed by the host agency to document the planning and conduct of this exercise.

Name of Exercise Planner

_____

Signature of Exercise Planner

_____

Exercise Date

_____

Who Completed Checklist

_____

Listing of participating agencies provided copies of the exercise scenario and report:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Radiography Exercise

Exercise Controller Position Listing:

Controller Position Listing			
Organization	**Name**	**Location or Contact Information**	**Position**
			Exercise Director
			Exercise Safety Officer
			Media Coordinator
			Fire Department
			Fire Department
			Law Enforcement (Local)
			Law Enforcement (County)
			Emergency Operations Center Director
			Medical Service (County)
			Medical Service (Contract)
			HazMat Team (Local)
			HazMat Team (Regional)
			Local Radiation Authority
			State Radiation Authority
			State Emergency Operations Center
			National Response Team
			HazMat Team On-Scene Coordinator
			Nuclear Regulatory Commission
			U.S. DOE RAP Team
			Commercial Licensed Transporter
			Commercial Cleanup Contractor
			Other (Mutual Aid)

APPENDIX B
EXERCISE EVALUATION FORM

Date: _____
Exercise Location: _____
Evaluator/Controller Name:_____ _____

OBJECTIVE 1: INITIAL NOTIFICATION OF RESPONSE AGENCIES AND RESPONSE PERSONNEL

Demonstrate the ability to notify response agencies and to mobilize emergency personnel.

POINTS OF REVIEW

1. Which organization provided initial notification of the incident accident?

   _____

   _____

2. When did this occur?

   _____

   _____

3. Which organizations/individuals received this notification? When?
   Organization/Individuals _____ Time _____

4. Which notified organization(s) was responsible for notifying other necessary response elements?

   _____

5. Which organization provided notification of the incident/accident to external response support organizations?

   _____

   _____

6. If external response support notifications were made, indicate which organization/individual was contacted and the time of the notifications.
   Organization/Individuals _____ Time _____

7. Did the response organization mobilize initial response personnel?

   YES NO N/A N/O Time _____

Radiography Exercise

OBJECTIVE 1: INITIAL NOTIFICATION OF RESPONSE AGENCIES AND RESPONSE PERSONNEL (continued)

8. If so, were the types and numbers of personnel mobilized related to the classification level of the emergency?

   YES NO N/A N/O Time _____

9. If not, how were the types and numbers of personnel determined?

   _____
   _____
   _____
   _____

10. Through what means were the personnel mobilized?

    _____
    _____
    _____
    _____

11. At what time did the mobilization process start and end for the responding organizations and personnel?

    Organization

    _____

    Mobilization Started _____ Ended _____

12. At what time did the mobilized staff start arriving at their duty stations?

    _____
    _____
    _____

13. At what time were most of the key positions filled?

    _____
    _____
    _____

EXERCISE EVALUATION FORM

Date: _____
Exercise Location: _____
Evaluator/Controller Name: _____

OBJECTIVE 2: DIRECTION AND CONTROL

Demonstrate the ability to direct, coordinate, and control emergency response activities through operations of an incident command system (ICS) and other direction and control structures.

POINTS OF REVIEW

1. Which position within the response organization did you evaluate?
   _____ Incident Commander
   _____ Emergency Management Director (EMD) at EOC
   _____ Other designated personnel with leadership role in response organization
   (List positions _____)

2. Check those actions which the Incident Commander accomplished in accordance with his/her agency response plan:
   _____ Established a visible command post
   _____ Established communications with offsite organizations
   _____ Provided information about the incident/accident to offsite response authorities
   _____ Assumed responsibility for the management of operations at the incident/accident site by a site-specific IC
   _____ Established an organizational structure for the management of on-scene response operations, including delegations of authority
   _____ Coordinated with personnel at the EOC or other offsite response authorities
   _____ Managed the ICS interface with the operations of Federal On-Scene Coordinator
   _____ Provided direction and control to all organizations responsible for response actions at the incident/accident site

3. Check those actions which the Incident Commander/EMD/or other designated personnel with a leadership role in the response organization accomplished:
   _____ Issued instructions to staff on response operations
   _____ Provided directions on adherence to the plan
   _____ Coordinated with and disseminated information to offsite response organizations or any command of the offsite response effort
   _____ Resolved conflicts
   _____ Provided leadership in decision making
   _____ Consulted with staff
   _____ Provided needed authorities for emergency action
   _____ Directed or coordinated with other response organizations

Radiography Exercise

EXERCISE EVALUATION FORM

Date: _____
Exercise Location: _____
Evaluator/Controller Name: _____

OBJECTIVE 3: INCIDENT ASSESSMENT

Demonstrate the ability to identify the hazardous material(s) involved in an incident/accident and to assess the hazards associated with the material involved during both the emergency and post-emergency phases.

POINTS OF REVIEW

1. Who performed the initial incident assessment?

   _____

2. Check the type of information that was obtained during the initial assessment:
   _____ Type of container, package, etc. involved (List_____)
   _____ Extent of damage
   _____ Estimated quantity of material involved
   _____ Shipping papers or MSDS's secured
   _____ Placards, identification numbers, markings, labels
   _____ Information from knowledgeable persons

3. Did the response organization consult various emergency response resources for initial response information?

   YES NO N/A N/O Time _____

4. List which resources were consulted?

   _____

5. Check those organizations that were contacted for additional assistance or response information:
   _____ CHEMTREC/CHEMTEL
   _____ The shipper
   _____ The transportation company
   _____ Facility management
   _____ Outside expert's computer and/or manual databases
   _____ Other (List_____)

Radiography Exercise

OBJECTIVE 3: INCIDENT ASSESSMENT (continued)

6. Did the response organization report the observed field data to other response units?

   YES NO N/A N/O Time _____

7. If yes, to which organizations?

   _____
   _____
   _____

8. Was the affected area secured?

   YES NO N/A N/O Time _____

9. Who performed the ongoing incident assessment? _____

10. Did the response organization assess the potential hazards both at the affected sites and to adjacent areas?

    YES NO N/A N/O

11. Check the following physical factors affecting the release that the response organization assessed:
    _____ The material state (liquid, gas, solid)
    _____ Actual and projected release rate
    _____ Direction of the material released in air or water
    _____ The physical factors associated with the natural setting

12. Check the strategies the response organization used to assess hazards:
    _____ Established a priority for monitoring airborne toxic substances
    _____ Developed a strategy for monitoring and using direct reading instruments
    _____ Maintained monitoring capabilities for the duration of the release
    _____ Identified and responded to atmospheric and geographic conditions
    _____ Obtained environmental samples
    _____ Analyzed the samples
    _____ Supplemented field monitoring data with assessment data that are based on various computer models

Radiography Exercise

OBJECTIVE 3: INCIDENT ASSESSMENT (continued)

13. Who was responsible for field monitoring activities?

_____

_____

_____

14. What procedures were implemented by the field monitoring teams?

_____

_____

_____

15. Did the response organization use the analysis of the field samples to guide decision makers in developing protective actions for the responders and for the general public?

YES NO N/A N/O

EXERCISE EVALUATION FORM

Date: _____
Exercise Location: _____
Evaluator/Controller Name: _____

OBJECTIVE 4: RESOURCE MANAGEMENT

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

POINTS OF REVIEW

1. Did the response organization determine the resources that it required to respond to the incident/accident?

   YES NO N/A N/O

   How was this accomplished?

   _____
   _____
   _____

2. Was this process triggered by development of a strategy for containing the incident/accident?

   YES NO

3. When did the organization start and finish this process of identifying the required resources?

   _____
   _____
   _____

4. Was this process completed in time to be supportive of the implementation of a response strategy?

   YES NO

5. Did the organization contact **local** resource providers and request necessary resources?

   YES NO N/A N/O

Radiography Exercise

OBJECTIVE 4: RESOURCE MANAGEMENT (continued)

6. When did this process start and end?

_____

_____

_____

_____

7. Were these calls placed to a control cell or to providers?

_____

_____

8. If calls were made to providers, did the response organization use up-to-date and accurate lists of telephone numbers and points of contacts?

YES NO N/A N/O

9. What types of resources were requested?

_____

_____

10. Which local resource providers were contacted?

_____

_____

11. Did the organization contact **external** resource providers and request necessary resources?

YES NO N/A N/O

12. When did this process start and end?

_____

_____

_____

13. Were these calls placed to a control cell or to providers?

_____

_____

_____

Radiography Exercise

OBJECTIVE 4: RESOURCE MANAGEMENT (continued)

14. If calls were made to providers, did the response organization use up-to-date and accurate lists of telephone numbers and points of contacts?

    YES NO N/A N/O

15. What types of resources were requested?

    _____
    _____
    _____

16. Which external organizations were contacted?

    _____
    _____
    _____
    _____
    _____

17. Did any of the contacted **local** resource providers deploy any resources to the site of the incident/accident?

    YES NO N/A N/O

18. Which providers?_____

    What resources? _____

    Organization/Individuals _____

    When did they arrive? _____

19. Were they the resources requested?

    YES NO N/A N/O

20. Did any of the contacted **external** resource providers deploy any resources to the site of the incident/accident?

    YES NO N/A N/O

Radiography Exercise

OBJECTIVE 4: RESOURCE MANAGEMENT (continued)

21. Which providers?_____

    What resources? _____

    When did they arrive? _____

22. Were they the resources requested?

    YES NO N/A N/O

23. Did the IC demonstrate the capability to integrate any deployed external resources into the response effort?

    YES NO N/A N/O

24. Did the organization demonstrate procedures for securing replacement resources of:

    _____ Equipment YES NO
    _____ Personnel YES NO
    _____ Supplies YES NO

25. If the organization demonstrated procedures for any of the above, did it contact the providers for additional resources?

    YES NO N/A N/O

26. Did the providers deploy any additional resources?

    YES NO N/A N/O

27. Which resources were deployed?

    _____
    _____
    _____

Radiography Exercise

OBJECTIVE 4: RESOURCE MANAGEMENT (continued)

28. Did the organization demonstrate a shift change?

YES NO N/A N/O Time _____

29. Was an individual/organization designated to keep record of resources expended?

YES NO N/A N/O

30. Was an individual/organization designated to record the expenditure of funds in support of the response?

YES NO N/A N/O

31. Identify the individual(s)/organization(s) responsible for such record keeping.

_____

_____

_____

_____

Radiography Exercise

EXERCISE EVALUATION FORM

Date: _____
Exercise Location: _____
Evaluator/Controller Name: _____

OBJECTIVE 5: COMMUNICATIONS

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

POINTS OF REVIEW

1. Check those response units the Incident Commander (IC) established communications with:
   _____ The first responding units at the incident/accident site
   _____ Field teams engaged in operations at the incident/accident location
   _____ All response organizations whose support is requested by the IC
   _____ All newly arriving response organizations (including those from other jurisdictions)
   _____ The commanders of all major response organizations
   _____ Offsite sources of advice and assistance in the identification of the hazardous materials, and the development and implementation of a strategy for containment, cleanup, and recovery
   _____ Other (List_____)

2. Regarding the above response units, were the communications links maintained at a functioning level in support of the IC and the supporting response units?

   YES NO N/A N/O

3. Did the IC use the established communication linkages for the performance of his direction and control responsibilities?

   YES NO N/A N/O

4. Were the communications links between these locations able to handle all necessary traffic?

   YES NO N/A N/O

5. Did the EOC staff quickly establish and maintain effective communications throughout the response effort with the IC and response units under the direction of the EOC staff?

   YES NO N/A N/O

Radiography Exercise

OBJECTIVE 5: COMMUNICATIONS (continued)

6. Were the communications links between these locations able to handle all necessary traffic?

   YES NO N/A N/O

7. Were response organizations functioning at locations removed from the IC and EOC able to develop effective lines of communication (to communicate with each other)?

   YES NO N/A N/O

8. Did the response organization use the communications system to provide direction and control to the organizations under their command?

   YES NO N/A N/O

9. Did the response organization use the communications system to coordinate their activities with other organizations?

   YES NO N/A N/O

Radiography Exercise

EXERCISE EVALUATION FORM

Date: _____
Exercise Location: _____
Evaluator/Controller Name: _____

OBJECTIVE 10: RESPONSE PERSONNEL SAFETY

Demonstrate the ability to protect emergency responder health and safety.

POINTS OF REVIEW

1. Did the response organization establish and maintain one or more zones to regulate the movement of personnel in and out of the site?

   YES NO N/A N/O Time _____

2. Did the response organization establish barriers around a restricted zone or "hot zone?"

   YES NO N/A N/O Time _____

3. Were the boundaries of that zone clearly visible to all response personnel?

   YES NO N/A N/O

4. Did the response organization limit the number of personnel allowed in the restricted zone?

   YES NO N/A N/O

5. Did the response organization limit the amount of time each responder remained in that zone?

   YES NO N/A N/O

6. Did the response organization provide protective equipment and clothing to responders?

   YES NO N/A N/O

7. Was the type of equipment provided based upon the organization's safety and health plan?

   YES NO N/A N/O

Radiography Exercise

OBJECTIVE 10: RESPONSE PERSONNEL SAFETY (continued)

List equipment.

_____

_____

_____

_____

_____

_____

8. Did the response organization use the results of ongoing incident assessment to determine the level (Level A, B, or C) and types of protection to be provided to responders?

   YES NO N/A N/O

9. Did the response organization ensure that no emergency worker entered the restricted zone without the required protective equipment and clothing?

   YES NO N/A N/O

10. Did the response organization establish and maintain rules for the use of protective equipment by responders while in the restricted zone?

    YES NO N/A N/O

11. Did response personnel operate within the restricted zone under supervision of a safety officer?

    YES NO N/A N/O

12. Were fire fighters involved in operations beyond the initial stages of the incident/accident provided protective equipment which meets the criteria required by OSHA 29 CFR 1910.156(e)?

    YES NO N/A N/O

13. If appropriate equipment was available to responders, were response personnel trained in its safe and proper use?

    YES NO N/A N/O

Radiography Exercise

OBJECTIVE 10: RESPONSE PERSONNEL SAFETY (continued)

14. Were communication links between the IC, the safety officer, and the site entry team adequate to support safe and effective response operation?

    YES NO N/A N/O

15. Did the safety officer have access to weather data?

    YES NO N/A N/O

16. By what means (status board, etc.) was equipment and manpower tracked?

    _____
    _____
    _____
    _____
    _____
    _____

17. Did emergency responders with exposure to an actual or potential inhalation hazard wear positive pressure self-contained breathing apparatus while engaged in emergency response?

    YES NO N/A N/O

18. Did the IC allow emergency responders to remove equipment referred to in 12 and 17 above?

    YES NO N/A N/O Time _____

19. Were operations in hazardous area performed in the "buddy system?"

    YES NO N/A N/O

20. Check those actions that the response organization provided to emergency workers:
    _____ Emergency assistance
    _____ Rescue
    _____ First aid
    _____ Emergency medical transportation
    _____ Other (List_____)

Radiography Exercise

OBJECTIVE 10: RESPONSE PERSONNEL SAFETY (continued)

21. Check those actions taken upon the departure of emergency response personnel from the restricted zone:
    _____ Monitored for contamination
    _____ Decontaminated
    _____ Re-monitored

Radiography Exercise

EXERCISE EVALUATION FORM

Date: _____
Exercise Location: _____
Evaluator/Controller Name: _____

OBJECTIVE 11: TRAFFIC AND ACCESS CONTROL

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

POINTS OF REVIEW

1. Was site security implemented at the incident/accident?

   YES NO N/A N/O Time _____

2. Who was responsible for implementing site security?

   _____
   _____
   _____
   _____
   _____
   _____
   _____
   _____
   _____
   _____
   _____

3. Were only authorized and necessary personnel allowed access to the incident/accident scene?

   YES NO N/A N/O

4. Check those actions included in site security procedures:
   _____ Cordoning off the area with police tape or roadblocks
   _____ Removing unauthorized vehicles and personnel to allow for easier access to the site by the response organization
   _____ Diverting all unnecessary traffic away from the area of the incident

Radiography Exercise

OBJECTIVE 11: TRAFFIC AND ACCESS CONTROL (continued)

5. Were traffic controllers actually deployed to designated traffic/access control points?

   YES NO N/A N/O

6. Was this deployment accomplished in a manner to facilitate traffic and access control?

   YES NO N/A N/O

7. Did the traffic/access controllers minimize delays?

   YES NO N/A N/O

8. Were the number of traffic and access control personnel and resources mobilized adequate to direct and control the evacuation traffic flow?

   YES NO N/A N/O

9. Were maps provided to local law enforcement personnel depicting the affected area and evacuation routes?

   YES NO N/A N/O

10. In the event the protective action strategy was to shelter-in-place, did the traffic controllers control the access of personnel, equipment, etc. into and from the sheltered area?

    YES NO N/A N/O

11. Did traffic/access controllers limit and prevent access to evacuated or hazardous areas?

    YES NO N/A N/O

12. Did traffic/access controllers limit access to waterways, railways, and airspace in affected area?

    YES NO N/A N/O

Radiography Exercise

OBJECTIVE 11: TRAFFIC AND ACCESS CONTROL (continued)

13. Did response organizations keep the traffic access control personnel informed of significant developments in the emergency situation?

    YES NO N/A N/O Time _____

14. How was this information provided to traffic and access control staff?

    _____

    _____

15. Check those areas in which traffic and access control personnel demonstrated accurate knowledge of their roles:

    _____ Traffic control and access control
    _____ Evacuation routes
    _____ Destination routes
    _____ Location of reception centers
    _____ Any relocation, recovery, and reentry activities for which traffic and access control are pertinent

EXERCISE EVALUATION FORM

Date: _____
Exercise Location: _____
Evaluator/Controller Name: _____

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.

POINTS OF REVIEW

1. Which organization(s) demonstrated this objective?

_____
_____
_____
_____
_____
_____
_____

2. Did EMS personnel establish a protective zone around injured or contaminated individual(s)?

YES NO N/A N/0 Time _____

3. Were the EMS personnel aware of the hazardous material involved?

YES NO N/A N/O

4. If yes, describe how the material was identified and the material involved.

_____
_____
_____
_____
_____
_____
_____
_____

Radiography Exercise

OBJECTIVE 14: EMERGENCY MEDICAL SERVICES (continued)

5. Did EMS personnel determine the nature and extent of the injuries?

   YES NO N/A N/O

6. Check those actions taken by the EMS personnel:
   _____ Referred to an initial response resource for immediate first aid for injured patients
   _____ Instituted emergency care using the triage concept
   _____ In case of contact with material, immediately flushed the skin or eyes with running water for at least 15 minutes
   _____ Removed and isolated any contaminated clothing and shoes
   _____ Kept the patient quiet and maintained normal body temperature

7. Did the EMS personnel take steps to limit contamination to:
   _____ Other personnel YES NO
   _____ The vehicle YES NO
   _____ The facility/site YES NO

8. Check those contamination control procedures used by the EMS personnel:
   _____ Used gloves as protection against contamination
   _____ Lined the interior and shielded the floor of the ambulance with a protective covering
   _____ Wrapped the individual in a sealed sheet or blanket

9. After the injured individual(s) was delivered to a medical facility, were the following monitored for possible contamination?
   _____ The ambulance crew YES NO
   _____ The ambulance YES NO

10. Was decontamination of the EMS personnel or vehicle necessary?

    YES NO N/A N/O

11. If yes, describe the decontamination procedures.

_____
_____
_____
_____
_____
_____

Radiography Exercise

OBJECTIVE 14: EMERGENCY MEDICAL SERVICES (continued)

12. Did the response organization know which ambulance services were designated to provide transportation for contaminated and/or injured persons?

    YES NO N/A N/O

13. Did the ambulance crew know which medical facility to transport the injured individual(s) to?

    YES NO N/A N/O

14. Did the ambulance crew actually drive the individual(s) to the selected medical facility?

    YES NO N/A N/O

15. Did the ambulance crew maintain communications with:
    _____ The response organization YES NO
    _____ The receiving medical facility YES NO

16. Did the ambulance crew communicate the following information to the receiving medical facility?
    _____ Information and data on the individual's physical condition including their assessment regarding internal or external contamination
    _____ Vital signs
    _____ The type of hazardous materials involved in the accident
    _____ Material Safety Data Sheet (MSDS) information relating to hazardous material involved, if available
    _____ Estimated time of arrival at the medical facility

17. Were the following medical staff present during the medical examination?
    _____ Physician
    _____ Nurse
    _____ Toxicologist
    _____ Other (List_____)

Radiography Exercise

OBJECTIVE 14: EMERGENCY MEDICAL SERVICES (continued)

18. Did the receiving medical facility have written procedures for dealing with potentially contaminated individuals?

    YES NO N/A N/O

19. Did the medical facility have MSDS information available onsite?

    YES NO N/A N/O

20. Did the medical facility establish a controlled area where the injured individual(s) would be treated?

    YES NO N/A N/O Time _____

21. Check those procedures implemented by the medical facility to ensure the controlled area is isolated and self-contained:
    - _____ All doors leading to the area remain closed
    - _____ Ventilation systems are filtered or independent of other systems within the medical facility
    - _____ Floors are covered to minimize contamination within the area
    - _____ Appropriate warning signs are in place
    - _____ Unnecessary equipment is either removed or covered
    - _____ Necessary equipment, including a portable soil density gauge, if applicable, is in place
    - _____ A buffer zone separating the controlled area from the rest of the facility is established
    - _____ Medical facility staff who have direct contact with contaminated individuals take the necessary precautions to avoid contact with the contamination

22. Did the medical staff monitor and assess the injured individual(s) for contamination?

    YES NO N/A N/O

23. If yes, describe how this was demonstrated.

    _____
    _____
    _____
    _____
    _____
    _____

Radiography Exercise

OBJECTIVE 14: EMERGENCY MEDICAL SERVICES (continued)

24. If more than one hazardous material was involved, did the medical staff treat the patient(s) with the proper priority of the materials involved?

YES NO N/A N/O

25. Did a toxicologist analyze the sample from the injured individual(s)?

YES NO N/A N/O Time _____

26. Were the results of the analysis transmitted to the attending medical staff?

YES NO N/A N/O Time _____

27. Did the medical staff implement decontamination procedures for cleansing localized areas on the patient(s)?

YES NO N/A N/O

28. Were antidotes or neutralizing chemicals used?

YES NO N/A N/O

29. Describe the decontamination procedures.

_____
_____
_____
_____
_____
_____

30. Did the medical staff contain and store any waste solutions for disposal?

YES NO N/A N/O

31. Did the medical staff maintain contamination control measures during and after treatment of the patient(s)?

YES NO N/A N/O

Radiography Exercise

OBJECTIVE 14: EMERGENCY MEDICAL SERVICES (continued)

32. Did the medical staff properly dispose of any contaminated waste and clothing?

YES NO N/A N/O

33. Did the medical staff properly decontaminate any instruments or medical paraphernalia?

YES NO N/A N/O

34. Was the medical staff decontaminated before reentering the medical facility from the controlled area?

YES NO N/A N/O

EXERCISE EVALUATION FORM

Date: _____
Exercise Location: _____
Evaluator/Controller Name: _____

OBJECTIVE 15: CONTAINMENT AND CLEANUP

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

POINTS OF REVIEW

1. Was the source of the release controlled?

   YES NO N/A N/O

2. If yes, describe how this was accomplished.

   _____
   _____
   _____
   _____

3. Was the released material contained?

   YES NO N/A N/O Time _____

4. If yes, describe how this was accomplished.

   _____
   _____
   _____
   _____
   _____

5. Check those resources used to assist in containing the release:
   _____ DOT ERG
   _____ CHEMTREC/CHEMTEL
   _____ Shipper/Transporter
   _____ Other (List_____)

Radiography Exercise

OBJECTIVE 15: CONTAINMENT AND CLEANUP (continued)

6. Did the response organization assess the impact of the control/containment strategies on public health and safety and the environment?

   YES NO N/A N/O

7. Did the response organization have available an up-to-date list of cleanup and disposal contractors?

   YES NO N/A N/O

8. Did the response organization contact and secure cleanup and disposal contractors?

   YES NO N/A N/O Time _____

9. If yes, who made the contact?

   _____

10. What organization/company was contacted?

    _____

11. Did the response organization have available an updated list of RCRA disposal facilities?

    YES NO N/A N/O

12. Did the response organization contact the appropriate State agency offices for information on State requirements for hazardous waste disposal?

    YES NO N/A N/O Time _____

13. Who made the call?

    _____

14. Which State agency was contacted?

    _____

Radiography Exercise

OBJECTIVE 15: CONTAINMENT AND CLEANUP (continued)

15. Was assistance requested?

YES NO N/A N/O

16. Did the response organization implement controlled policies and strategies on reentry for:
_____ Emergency response personnel YES NO
_____ Evacuated population YES NO
_____ Other (List _____)

17. Did the response organization notify the following of the reentry decision?
_____ All appropriate response organizations YES NO
_____ Those responsible for congregate care of evacuees YES NO

18. Did the response organization inform the public of the reentry decision?

YES NO N/A N/O Time _____

19. Check the information included in the messages to the public:
_____ The safety of water
_____ The safety of food
_____ The general environment in the affected area

20. Did the response organization initiate traffic and access control?

YES NO N/A N/O Time _____

21. Did the response organization provide transportation assistance if necessary?

YES NO N/A N/O Time _____

22. Did the response organization implement policies on recovery?

YES NO N/A N/O Time _____

23. Did the response organization establish needs for decontamination efforts?

YES NO N/A N/O Time _____

Radiography Exercise

OBJECTIVE 15: CONTAINMENT AND CLEANUP (continued)

24. Did the response organization restore vital services in the affected area?

YES NO N/A N/O Time _____

25. Did the response organization prioritize the use of resources necessary for such restoration?

YES NO N/A N/O Time _____

Radiography Exercise

EXERCISE EVALUATION FORM

Date: _____
Exercise Location: _____
Evaluator/Controller Name: _____

OBJECTIVE 16: INCIDENT DOCUMENTATION AND INVESTIGATION

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

POINTS OF REVIEW

1. Was an incident/accident debriefing meeting conducted?

   YES NO N/A N/O Time _____

2. Who was responsible for conducting the debriefing?

   _____

3. List the response personnel involved in the debriefing.

   _____
   _____
   _____
   _____
   _____
   _____

4. Was a time-line developed at the debriefing?

   YES NO N/A N/O

5. Was an incident/accident investigation initiated?

   YES NO N/A N/O

6. Who was responsible for the investigation?

   _____
   _____
   _____

Radiography Exercise

OBJECTIVE 16: INCIDENT DOCUMENTATION AND INVESTIGATION (continued)

7. Was the cause of the incident/accident determined?

   YES NO N/A N/O

8. Were response personnel logs and records used as part of the investigation?

   YES NO N/A N/O

9. Was incident/accident information from the media secured to aid in the investigation?

   YES NO N/A N/O

10. Was the response to the incident/accident evaluated?

    YES NO N/A N/O

11. If yes, describe how the response was evaluated?

    _____
    _____
    _____
    _____
    _____
    _____
    _____

12. Check recommendations that were made:
    _____ Amend the plan
    _____ Provide training to responders
    _____ Conduct additional exercises
    _____ Provide training to the public
    _____ Other (List _____)

13. Were plans initiated to document the response to the incident/accident in a written report?

    YES NO N/A N/O

Radiography Exercise

OBJECTIVE 16: INCIDENT DOCUMENTATION AND INVESTIGATION (continued)

14. Who was responsible for preparing the written report?

APPENDIX C
EXERCISE CHRONOLOGY LOG

Exercise Chronology Log	
Time observed	Describe objective, action, or concern observed

APPENDIX D
RADIOLOGICAL DATA

Number	Question	Response
1	Did responder preform preoperational checks on the instrument and start on appropriate scale?	
2	Which type of instrument or probe did responder use (contamination/radiation or pancake/hotdog)?	
3	Were readings for type of instrument/probe being used appropriate (contamination = cpm or radiation = mR/hr)?	
4	Did responder realize that direct contamination readings cannot be taken on the package/camera because of radiation penetrating through the package?	
5	Did responder use the smearing method to determine if contamination was present on package or surrounding area?	

Radiation Readings for Responder Approach		
Distance	**Radiological Readings cpm (contamination survey instrument)**	**Radiological Readings mR/hr (radiation survey instrument)**
30 - 20 feet	Background to 150 cpm	Background to 0.02 mR/hr
15 feet	200 cpm	0.04 mR/hr
5 feet	1200 cpm	0.36 mR/hr
3 feet	4550 cpm	1 mR/hr
2 feet	7500 cpm	2 mR/hr
1 foot	35,000 cpm	8 mR/hr
6 inches	100,000 cpm	25 mR/hr
Contact	180,000 cpm	45 mR/hr

Radiography Exercise

SHIPPER'S DECLARATION FOR DANGEROUS GOODS

(Provide at least two copies to the airline)

Shipper

Cowboy Construction
134 Main Street Suite 6
Rad Palm, FL 99620

Air Waybill No.

Page 1 of 1 Pages

Shipper's Reference Number (optional)

Consignee

Nuclear Camera Company
125 Broughton Drive
Martinez, CA 94553

Eds Express Delivery Service

Two completed and signed copies of this Declaration must be handed to the operator.

TRANSPORT DETAILS

This shipment is within the limitations prescribed for: (delete non-applicable)

~~PASSENGER AND CARGO AIRCRAFT~~	CARGO AIRCRAFT ONLY

Airport of Departure

Airport of Destination:

WARNING

Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties. This Declaration must not, in any circumstances, be completed and/or signed by a consolidator, a forwarder, or an IATA cargo agent.

Shipment type: (delete non-applicable)

~~NON-RADIOACTIVE~~	RADIOACTIVE

NATURE AND QUANTITY OF DANGEROUS GOODS

Dangerous Goods Identification					Quantity and type of packaging	Packing Inst.	Authorization
Proper Shipping Name	Class or Division	UN or ID No.	Packing Group	Subsidiary Risk			
Radioactive Material, Type B(U) Package	7	2916			Ir-192, Special Form, 2.96 TBq (80 Ci) All in one Type B Package Dimensions (17.5 x 14.5 x 8 in)	Yellow-II TI = 0.8	

Additional Handling Information

IATA/ICAO Used

Emergency Telephone Number

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable International and National Governmental Regulations.

Name/Title of Signatory
Wanda Shippit / Shipper

Place and Date

Signature (see warning above) Wanda Shippit

IF ACCEPTABLE FOR PASSENGER AIRCRAFT, THIS SHIPMENT CONTAINS RADIOACTIVE MATERIAL INTENDED FOR USE IN, OR INCIDENT TO, RESEARCH, MEDICAL DIAGNOSIS, OR TREATMENT.

FedEx M-1421 10/94 LOGOS# 2041730848

Radiography Exercise

GUIDE 163 — RADIOACTIVE MATERIALS (LOW TO HIGH LEVEL RADIATION)

ERG2000

POTENTIAL HAZARDS

HEALTH

- Radiation presents minimal risk to transport workers, emergency response personnel, and the public during transportation accidents. Packaging durability increases as potential hazard of radioactive content increases.
- Undamaged packages are safe. Contents of damaged packages may cause higher external radiation exposure, or both external and internal radiation exposure if contents are released.
- Type A packages (cartons, boxes, drums, articles, etc.) identified as "Type A" by marking on packages or by shipping papers contain non-life endangering amounts. Partial releases might be expected if "Type A" packages are damaged in moderately severe accidents.
- Type B packages, and the rarely occurring Type C packages, (large and small, usually metal) contain the most hazardous amounts. They can be identified by package markings or by shipping papers. Life threatening conditions may exist only if contents are released or package shielding fails. Because of design, evaluation, and testing of packages, these conditions would be expected only for accidents of utmost severity.
- The rarely occurring "Special Arrangement" shipments may be of Type A, Type B or Type C packages. Package type will be marked on packages, and shipment details will be on shipping papers.
- Radioactive White-I labels indicate radiation levels outside single, isolated, undamaged packages are very low (less than 0.005 mSv/h (0.5 mrem/h)).
- Radioactive Yellow-II and Yellow-III labeled packages have higher radiation levels. The transport index (TI) on the label identifies the maximum radiation level in mrem/h one meter from a single, isolated, undamaged package.
- Some radioactive materials cannot be detected by commonly available instruments.
- Water from cargo fire control may cause pollution.

FIRE OR EXPLOSION

- Some of these materials may burn, but most do not ignite readily.
- Radioactivity does not change flammability or other properties of materials.
- 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. Radiation Authority is usually responsible for decisions about radiological consequences and closure of emergencies.
- 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.

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.

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EMERGENCY RESPONSE

FIRE

- Presence of radioactive material will not influence the fire control processes and should not influence selection of 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, CO_2, water spray or regular foam.

Large Fires

- Water spray, fog (flooding amounts).
- Dike fire-control water for later disposal.

SPILL OR LEAK

- Do not touch damaged packages or spilled material.
- Damp surfaces on undamaged or slightly damaged packages are seldom an indication of packaging failure. Most packaging for liquid content have inner containers and/or inner absorbent materials.
- Cover liquid spill with sand, earth or other noncombustible absorbent material.

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 contaminated by contact with released material are not a serious hazard to health care personnel, equipment or facilities.
- Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

Radiography Exercise

Sample Package Marking (use one per package)

Radiography Exercise

Sample Package Labels
(use two per package)