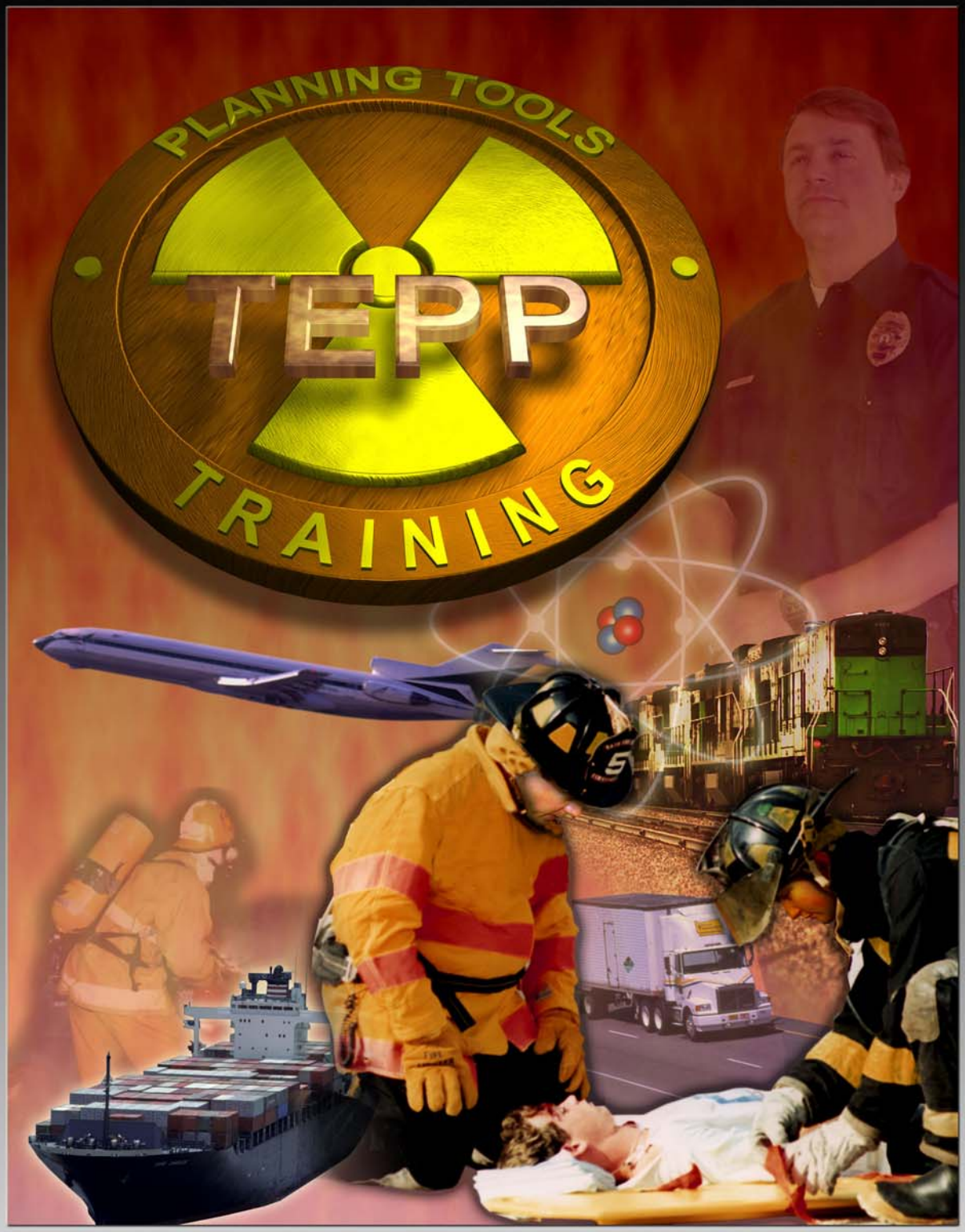
DEPARTMENT OF ENERGY

TRANSPORTATION EMERGENCY PREPAREDNESS PROGRAM



Spent Nuclear Fuel Transportation Accident Exercise Scenario

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

01/2005

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Transportation Emergency Preparedness Program (TEPP)

Drill-in-a-Box

Spent Nuclear Fuel Transportation Accident

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Spent Nuclear Fuel Exercise

EXERCISE SUMMARY

- Multiple vehicle accident on a public highway
- A truck hauling spent nuclear fuel (Class 7 - Radioactive) has crashed with a passenger bus
- Neither the outer nor inner shipping package of SNF is damaged
- The passenger bus has flipped on its side trapping multiple passengers
- This exercise does not include fire or fuel spillage
- This exercise, as written, includes multiple injury scenarios
- The exercise simulates the initial occurrence of the accident through the arrival and integration of the DOE Radiological Assistance Program (RAP) Team into the Incident Command System
- 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 spent nuclear fuel. 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 the guidance for conducting the exercise in a safe, efficient, coordinated manner, and provides a historical record of the exercise.

Spent Nuclear Fuel Exercise

2.0 SCOPE

This exercise scenario should be used to demonstrate the local community's emergency response deployment to a highway accident involving spent nuclear fuel. 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.

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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 IC should be transferred to the senior response officer, upon arrival, and a status turnover should be conducted. A visible command post, communication system, and organizational structure should be established. (Assumption: Response personnel have been trained to conduct response using ICS).

Objective 3 - Incident Assessment

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

Extent of Play:

This objective should be demonstrated by the active assessment of the incident hazards, including a preliminary observational survey of possible injuries, physical hazards at the accident site,

materials released, extent of release, release receptors, and the hazards associated with the materials. The initial assessment information should be obtained from placards, shipping documents, 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.

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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 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.

Spent Nuclear Fuel 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.

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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.

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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.

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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.

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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 Sheet 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 Evaluation Forms in Appendix B and Exercise Chronology Log found in Appendix C.
3. Participate in the post-exercise exercise controller 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.

Spent Nuclear Fuel Exercise

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

A highway shipment of spent nuclear fuel (Class 7 - Radioactive) is in transit from the Idaho National Engineering and Environmental Laboratory (INEEL) outside of Idaho Falls, Idaho when it is involved in a multiple vehicle accident. The shipment consists of one cask (Type B container) of spent nuclear fuel. The truck hauling the spent nuclear fuel has collided with a passenger bus carrying 20 people. The truck has received moderate damage, is upright and on the road shoulder. The cask has not been breached. The passenger bus is on its side on the shoulder of the roadway with most of the bus passengers trapped inside. Radiation levels are normal. No contamination is released.

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:

The truck driver immediately initiates an emergency notification to the State Police and the Department of Energy. A simulated TRANSCOM message is simultaneously made to the State Environmental Protection Division Warning Point and the DOE. Also, a motorist (role player) in a vehicle in the vicinity of the (simulated) accident reports it, via cellular phone, to the local emergency response network (e.g., 911) dispatch center. The report provides no information other than the location of the accident.

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

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

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The first emergency response unit to arrive on the scene should assume the position of Incident Commander (IC). The first unit should establish initial control of the scene, cordon off the accident area, and set up traffic control or rerouting. Shortly after the arrival of the first unit, the remaining response units (fire, police, EMS, etc.) should arrive.

An initial hazards assessment should be made of the scene. A strategy for site safety and response actions should be developed in accordance with the guidelines set forth in the Emergency Response Guidebook (ERG). If arriving units identify the Class 7 - Radioactive placard and units are equipped with radiological monitoring equipment, responders should demonstrate radiological monitoring/survey operations. Proper site control and evacuation procedures should be implemented as outlined in ERG Guide 165. The Emergency Response Guidebook states, persons within 75 feet of the incident scene should be evacuated. The IC should brief responders on the observed hazards at the scene prior to any response actions occurring.

Based on the accident scene assessment, responders should begin actions to rescue and treat the truck driver and passenger bus occupants. Upon arrival at the scene, EMS should assess the scene and plan/prepare for treatment of mass casualties and potential contamination hazards.

The driver of the truck is alert and has minor cuts and abrasions. Responders should question the driver as to location of shipping papers and cause of the accident. The driver will have the shipping papers with him. The shipping papers contain the emergency response telephone number provided by the shipper.

There are 20 people on the passenger bus. Six have serious injuries, 10 have minor injuries, three have no injuries, and one is a fatality. Rescue operations should be implemented to extricate the trapped passenger bus patients. Necessary response resources should be deployed and consideration should be given to positioning of these resources in relation to the spent nuclear fuel package.

The IC should conduct emergency notifications or request these notifications be made by the dispatcher (e.g., the emergency response phone number on the shipping papers and to the state Radiation Authority). The shipper (role player simulating DOE representative) 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. The shipper will also tell the dispatcher/IC that the DOE Radiological Assistance Program (RAP) Team should be deployed to the site within 1 hour.

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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've entered the hot zone be separated and isolated until surveyed and determined to be clean.

The IC will discuss response resources and actions with Radiation Authority to determine the need for a Hazardous Materials Response Team (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 HMRT arrival the 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 HMRT will verify that established contamination practices were effective and decontamination has been completed. The HMRT 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 Radiation Authority or HMRT as appropriate to verify the accident area is free of contamination.

Upon arrival, the RAP Team will be briefed by the IC and the HMRT Captain explaining the status of the shipment, actions taken, and plans to complete the delivery of the package. The onsite portion of the exercise should be terminated at this point. An exercise debriefing should be conducted upon termination of the exercise to provide evaluation results and lessons learned to all participating players.

Spent Nuclear Fuel Exercise

Table 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 (controllers, players, props, signs, etc.).	
	00:00	Accident occurs between truck and passenger bus.	
	00:00	TRANSCOM and a motorist that observed the accident place calls (actual) to emergency response network (911) and each reports accident/scene conditions	1, 2
	00:05	Dispatch of emergency units is prompted.	3
	00:15	Emergency response units arrive and begin evaluating the incident scene. Responders discuss accident with driver and obtain shipping papers.	4
	00:18	ICP established. Incident response strategy is developed and IC briefs responders of objectives.	5
	00:20	Site security and control established. Site assessment for additional hazards and injuries is ongoing.	
	00:22	Responders begin treating accident scene injured. EMS notifies the hospital of a potential mass casualty incident and the need for the medical examiner/coroner at the accident scene.	Medical Messages 1 - 6
	00:30	Responders are prompted to use contamination precautions when necessary.	
	00:35	EMS begins transport of injured to hospital.	
	00:40	Local/state dispatcher(s) directed by IC to contact the shipper. The IC should discuss any specifics about the shipment with the shipper.	6
	00:50	The IC requests the deployment of the Hazardous Materials Response Team.	
	01:00	First responders have completed rescue operations and scene assessment. Responders should exit the established control zones and conduct dry decontamination on those responders who entered the hot zone.. Responders should be segregated from all other responders until they have been surveyed.	
	01:10	HMRT arrives. The HMRT Captain meets with the IC to discuss the current status and assist with mitigation planning. Recovery efforts begin. If the HMRT Captain and the IC are not communicating, input Message 7	7
	01:20	HMRT conducts radiation surveys of all responders who entered the accident scene, and conducts accident scene surveys to detect any released contamination.	
	01:30	DOE RAP Team arrives. RAP Team Captain meets with HMRT Captain and the IC to discuss RAP Team assistance.	
	TBD	Hold Messages 1 and 2 to be used only for breaks in play and to resume play.	8 A/B
	01:45	Exercise termination announcement to all agencies.	9
	01:50	Exercise controllers and players return incident scene to pre-exercise conditions.	
	02:00	Exercise controllers/players debriefedand 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.

Spent Nuclear Fuel Exercise

MESSAGE 1

Incident Scene Message

TO: 911 Dispatcher
FROM: TRANSCOM Dispatch Center
TIME: (00:00)

NOTE: Call this message via cell phone to the County 911 Dispatch Center upon authorization to commence the exercise. This message provides notification from TRANSCOM that the shipment truck has been involved in an accident. Remember that TRANSCOM has also notified the state, and DOE officials of the accident.

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

Message:

"This is the TRANSCOM dispatcher for the Department of Energy. A shipment of spent nuclear fuel has been in an accident on Interstate ____ at mile marker _____. The driver has checked in and reports he has only minor injuries. A second vehicle, a passenger bus, collided with the shipment truck and the passenger bus is on its side on the shoulder of the roadway. TRANSCOM is making notification to the appropriate state and federal agencies."

"If you have any questions you can contact me at _____ (provide a telephone number)."

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

Spent Nuclear Fuel Exercise

MESSAGE 2

Initial Notification Call

TO: 911 Dispatcher
FROM: Motorist (Player)
TIME: (00:00)

NOTE: Call this message via cell phone or CB upon Lead Controller authorization to commence the exercise. This message provides a "bystander" eye witness notification of the multiple vehicle accident.

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

Message:

"My name is _____. I am on Interstate _____, near mile marker _____. A truck has collided with a passenger bus. The bus is on its side on the shoulder of the roadway and the truck is on the shoulder of the road."

"Send help out here fast."

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

MESSAGE 3 (CONTINGENCY MESSAGE)

Initial Dispatch of Units

TO: Emergency Response Network Dispatcher
FROM: Dispatch Controller(s)
TIME: (00:05)

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
- Emergency Medical Service

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

MESSAGE 4 (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 photo 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 passenger bus is on its side on the shoulder of the roadway
- There are numerous passengers inside the bus
- The truck has damage to the front end
- The shipment package does not appear to be damaged
- No smoke or fire is coming from the truck
- The driver will meet the arriving first responders

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

MESSAGE 5 (CONTINGENCY MESSAGE)

Hazard Assessment

TO: Incident Commander
FROM: Lead Controller
TIME: (00:18)

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 request that the driver of the truck provide you with the shipping document information
- You are directed to observe package markings, labels, and placards and use the information for hazard assessment purposes
- You are also directed to determine if available resources are adequate for thorough site assessment and site control
- Initiate your mass casualty procedures to handle the passenger bus patients

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

Spent Nuclear Fuel Exercise

MESSAGE 6 (CONTINGENCY MESSAGE)

Shipper Information

TO: Emergency Network Dispatcher or Incident Commander (as applicable)
FROM: Dispatcher Controller or Lead Controller (as applicable)
TIME: (00:40)

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

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

Message:

PART 1: Issue this portion to the IC or dispatcher, as applicable, 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 in a reasonable amount of time.

"For the purpose of this exercise, you are directed to contact the shipper using the emergency response number." (as listed on shipping papers or as provided to the IC).

PART 2: Issue this portion of the message 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.

"This information was just provided to you by the shipper. The material is radioactive material, fissile, n.o.s. Cordon off the area, evacuate 75 feet in all directions, have response personnel remain upwind, and do not try to clean up the site. Remain outside of the area. The Radiological Assistance Program (RAP) Team has being deployed and should arrive within 1 hour."

PART 3: Issue this portion of the message if the dispatcher contacts the shipper (actual or role player) but the dispatcher does not relay technical information back to the IC in a reasonable time.

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

MESSAGE 6 (CONTINGENCY MESSAGE) - continued

CONTROLLER NOTE:
The following note only applies to the controller who is role playing the shipper. The information below should only be released if the IC, dispatcher, or another player requests this information from the shipper through the emergency telephone number contact:

- The material being shipped is radioactive material, fissile, n.o.s.

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

MESSAGE 7 (CONTINGENCY MESSAGE)

Response Team Briefing with the Incident Commander

TO: Incident Commander
FROM: Lead Controller
TIME: (01:10)

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 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.

MESSAGE 8A

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 8b 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.

Spent Nuclear Fuel Exercise

MESSAGE 8B

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.

MESSAGE 9

Termination Message

TO: All Key Players/Notification Locations
FROM: Lead Controller
TIME: (01:45)

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 Spent Nuclear Fuel 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.

Spent Nuclear Fuel Exercise

9.0 RADIOLOGICAL DATA

Included in this section are:

- Scene Description
- Radiation/Contamination Data

Scene Description

The spent nuclear fuel shipment truck (tractor) has received moderate damage. The trailer that the Type B cask is being transported on has not been damaged. There will be no release of radioactive material and no removable contamination found on the shipping cask/container or the surrounding area.

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 container itself because of the gamma radiation penetrating through the spent fuel cask. Contamination surveys should be taken by wiping or smearing the outside of the container and then checking each wipe for contamination in a low background area (i.e., away from the container).

The truck will be parked just off the side of the road with the cask/container still in place on the flatbed trailer. An example of a spent fuel package container is shown in the photo on the following page. In the photo shown, the cask is securely contained within the blue cargo container. 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:

Responders using a pancake probe to directly survey the flatbed trailer will get readings of 200 to 4,000 cpm (depending on proximity to shipping container). This will be from gamma radiation penetrating through the shipping container and not from contamination. Readings taken directly on the shipping container will be up to 35,000 cpm or up to 10 mR/hr (depending upon which type of survey meter the responder uses). If the responder takes open/closed window readings with an appropriate survey meter, there will be no difference between the open window and closed window readings.

If the trailer or shipping container are smeared for contamination and smears are checked in a low background area, no contamination will be found.

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.

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.

Spent Nuclear Fuel Exercise

12.0 PROPS

NOTE: You may decide to use signs, flags, and/or traffic cones as "props" in lieu of an actual vehicle, based on your budget and logistical considerations.

- Four Class 7 - Radioactive Material Placards
- Shipping papers and the Emergency Response Guidebook Guide 165, are provided with the radiological data in Appendix D
- Truck and trailer – Use an upright 18 wheel lowboy truck and trailer to simulate the spent nuclear fuel package with an empty ISO container placed on the back of the truck lowboy
- Passenger or school bus
- Moulage for minor injuries
- Mannequin or role player to simulate the fatality on the bus

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 truck, trailer, and bus may be simulated using appropriate props.
- Transport of the injured truck driver to the hospital may be simulated if the local hospitals are not participating in the exercise.

Spent Nuclear Fuel 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

Based on the scenario, a total of 20 people will be required to complete the medical portion of the exercise. As noted, six patients are in serious condition and their types of injuries are noted on the attached medical message pages. The 10 patients that have only minor injuries can be moulaged at the discretion of the Medical Controller. The fatality can be demonstrated by using a life sized mannequin.

MEDICAL MESSAGE 1
MODERATE FRACTURE OF EITHER AN ARM OR LEG

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

NOTE:This data applies to a patient with a moderate fracture of either an arm or leg. 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.

MEDICAL MESSAGE 2
AMPUTATION OF EITHER AN ARM OR LEG

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

NOTE:This data applies to a patient with an amputation of either an arm or leg. 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:

Amputation is jagged and bleeding is profuse and uncontrolled. Upon EMS arrival, patient is lying down and his/her responses are sluggish.

Expected Action:
Follow local protocols or standing orders.

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

MEDICAL MESSAGE 3
STRUCK IN CHEST WITH A BLUNT OBJECT

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

NOTE: This data applies to a patient who was struck in the chest with a blunt object. 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 is complaining of pain on inspiration. Breath sounds are clear and equal bilaterally. No deformity noted to chest wall. Ecchymosis noted at impact area.

NOTE: ECG Monitor corresponds to pulse rate.

Expected Action:
Follow local protocols or standing orders.

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

MEDICAL MESSAGE 4
SEVERE BLOW TO THE HEAD

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

NOTE:This data applies to a patient who has suffered a severe blow to the head. 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:
Deformity noted at impact site. Decorticate posturing noted.

NOTE: ECG Monitor corresponds to pulse.

Expected Action:
Follow local protocols or standing orders.

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

MEDICAL MESSAGE 5
MAJOR TRAUMA TO THE NECK

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

NOTE:This data applies to a patient who has suffered major trauma to the neck. 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:

No deformity or edema noted. Patient has non-purposeful movement of upper and lower extremities. No sensation to lower extremities.

Expected Action:
Follow local protocols or standing orders.

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

MEDICAL MESSAGE 6
HEART ATTACK

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

NOTE:This data applies to a patient who has suffered a severe heart attack. 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 is complaining of a sudden onset of severe substernal chest pain radiating down the left arm and neck. Pain is not relieved by nitro spray. Patient is also complaining of dyspnea. Patient has history of heart problems, having undergone bypass surgery two years ago.

NOTE: ECG Monitor - Ventricular fibrillation until defibrillated then asystole.

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 45). 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 45 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 _____

Spent Nuclear Fuel 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

Spent Nuclear Fuel 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_____)

Spent Nuclear Fuel 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

Spent Nuclear Fuel 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

Spent Nuclear Fuel 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?

_____

_____

_____

Spent Nuclear Fuel 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

Spent Nuclear Fuel 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?

    _____
    _____
    _____

Spent Nuclear Fuel 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.

_____

_____

_____

_____

Spent Nuclear Fuel 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

Spent Nuclear Fuel 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

Spent Nuclear Fuel 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

Spent Nuclear Fuel 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

Spent Nuclear Fuel 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_____)

Spent Nuclear Fuel 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

Spent Nuclear Fuel 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

Spent Nuclear Fuel 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

Spent Nuclear Fuel 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.

_____
_____
_____
_____
_____
_____
_____
_____

Spent Nuclear Fuel 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.

_____
_____
_____
_____
_____
_____

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_____)

Spent Nuclear Fuel 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.

    _____
    _____
    _____
    _____
    _____
    _____

Spent Nuclear Fuel 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

Spent Nuclear Fuel 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_____)

Spent Nuclear Fuel 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?

    _____

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 _____

Spent Nuclear Fuel 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 _____

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?

   _____
   _____
   _____

Spent Nuclear Fuel 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

Spent Nuclear Fuel 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 - 11 feet	Background to 150 cpm	Background to 0.02 mR/hr
10 feet	200 cpm	0.03 mR/hr
5 feet	350 cpm	0.1 mR/hr
3 feet	1,000 cpm	0.3 mR/hr
1 foot	4,000 cpm	0.9 mR/hr
6 inches	7,500 cpm	1.5 mR/hr
Contact	35,000 cpm	10 mR/hr

Spent Nuclear Fuel Exercise

STRAIGHT BILL OF LADING - SHORT FORM - Original - Not Negotiable

Shipper's No. 6-023E23

(Carrier _____ SCAC. _____ Carrier's No. OU8-12

Received, subject to the classifications and tariffs in effect on the date of this Bill of Lading

at _____ date _____ from _____

The property described below is in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said company (the word "company" being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line otherwise to deliver to another carrier on the route to said destination it is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination and as to each party at any time interested in all or any of said property that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written herein contained (as specified in Appendix B to Par 1035) which are hereby agreed to by the shipper and accepted for himself and his assigns.

(Mail or street address of consignee for purposes of notification only.)

TO:
Consignee Fuel Pool International
Street 2700 Terabequeral Way
Destination Goatville, UT Zip: 84806

FROM:
Shipper Idaho National Engineering & Environmental Lab
Street 12 Sagebrush Way
Origin Scoville, ID Zip: 83409

Route:

Delivering Carrier

Trader Initial/ Number

U.S. D.O.T Hazmat Reg. Number

No. of packages	HM	Description of articles, special marks, and exceptions	Hazard Class	I.D. Number	Packing Group	*Weight (subject to correction)	Class or Rate	Labels required (or exemption)	Check column
1		RQ Radioactive material, Type B(U) Package, Fissile	7	UN3328	NA	21990KG		RADIOACTIVE (YELLOW III)	
		"Highway Route Controled Quantity"							
		Radionulide: Plutonium and Uranium 235, and daughters Solid form as Plutonium and Uranium metals and oxides							
		Activity: 900 TBq Transport Index: 0.2							
		USA/9967/B(U) F							

Remit C.O.D. to:
Address:
City: State: Zip:

If the shipment movers between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight"
Note: where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby _____ per _____

COD AMT $

Charges Advanced $ _____

Subject to section 7 of conditions if this shipment is to be delivered to the consignee without recourse on the sonsignor, the consignor shall sign the ollowing statement.
The carrier shall not make delivery of this shipment without payment of freight

(Signature of consigner)

C. O. D. FEE:
Prepaid ☐
Collect ☐ $

FREIGHT CHARGES
☐ Prepaid ☐ Collect

This is to certify that the above-mentioned materials are properly classified, described, packaged, marked andlabeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.
per _____

PLACARDS REQUIRED: Radioactive Class 7, HRCQ

PLACARDS SUPPLIED: ☒ YES ☐ NO - FURNISHED BY
DRIVER'S SIGNATURE:

SHIPPER: _____
_____ DATE: _____
_____
_____
Permanent post office address of shipper

CARRIER: _____
PER: _____ DATE: _____
EMERGENCY RESPONSE ( )
Monitored at all times the Hazardous Material is in transportation including storage incidental to

9-BLS-A3 (Rev. 7/95)

Spent Nuclear Fuel Exercise

GUIDE 165 — RADIOACTIVE MATERIALS (FISSILE/LOW TO HIGH LEVEL RADIATION)

ERG2004

POTENTIAL HAZARDS

HEALTH

- Radiation presents minimal risk to transport workers, emergency response personnel and the public during transportation accidents. Packaging durability increases as potential radiation and criticality hazards of the content increase.
- 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 AF or IF packages, identified by package markings, do not contain life-threatening amounts of material. External radiation levels are low and packages are designed, evaluated and tested to control releases and to prevent a fission chain reaction under severe transport conditions.
- Type B(U)F, B(M)F and CF packages (identified by markings on packages or shipping papers) contain potentially life endangering amounts. Because of design, evaluation and testing of packages, fission chain reactions are prevented and releases are not expected to be life endangering for all accidents except those of utmost severity.
- The rarely occurring "Special Arrangement" shipments may be of Type AF, BF or CF packages. Package type will be marked on packages, and shipment details will be on shipping papers.
- The transport index (TI) shown on labels or a shipping paper might not indicate the radiation level at one meter from a single, isolated, undamaged package; instead, it might relate to controls needed during transport because of the fissile properties of the materials. Alternatively, the fissile nature of the contents may be indicated by a criticality safety index (CSI) on a special FISSILE label or on the shipping paper.
- Some radioactive materials cannot be detected by commonly available instruments.
- Water from cargo fire control is not expected to cause pollution.

FIRE OR EXPLOSION

- These materials are seldom flammable. Packages are designed to withstand fires without damage to contents.
- Radioactivity does not change flammability or other properties of materials.
- Type AF, IF, B(U)F, B(M)F and CF 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, fire control 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.
- As an immediate precautionary measure, isolate spill or leak area for at least 25 meters (75 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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RADIOACTIVE MATERIALS (FISSILE/LOW TO HIGH LEVEL RADIATION) GUIDE 165

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).

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.

Liquid Spills

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

FIRST AID

- Medical problems take priority over radiological concerns.
- Use first aid treatment according to the nature of the injury.
- Do not delay care and transport of a seriously injured person.
- Give 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.

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Sample Package Marking

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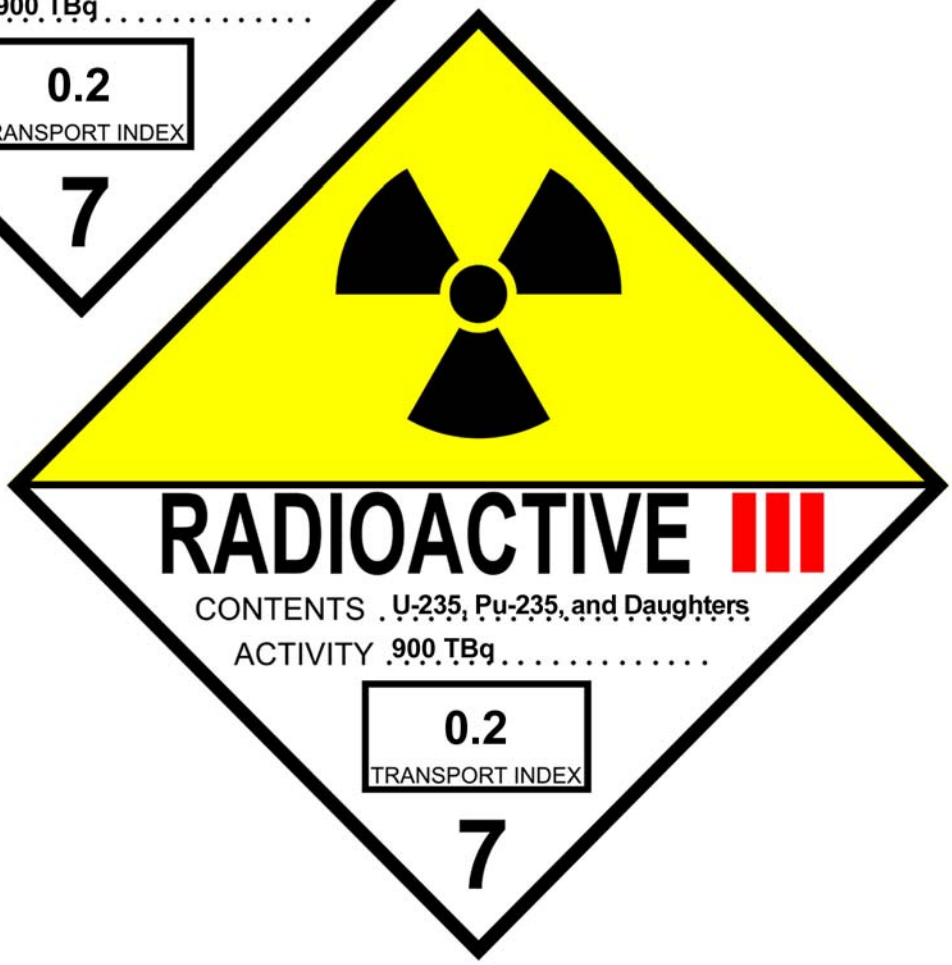
Sample Package Labels (use two per package)



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Sample Vehicle Placard Actual size approximately 15 inches square